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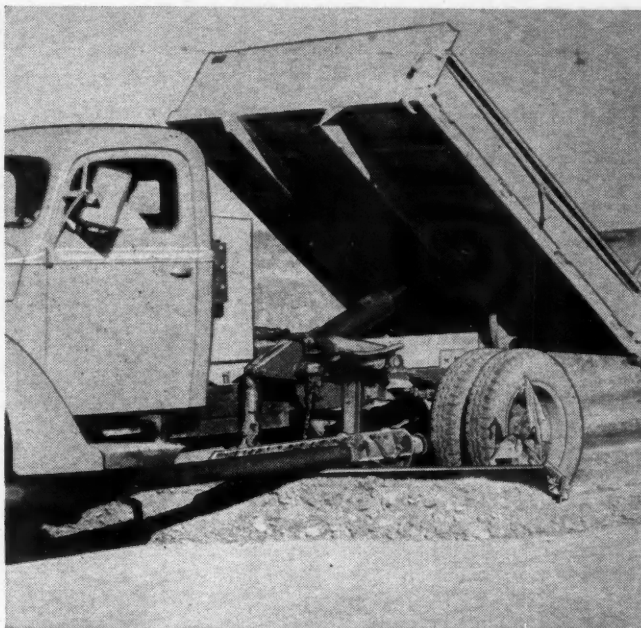
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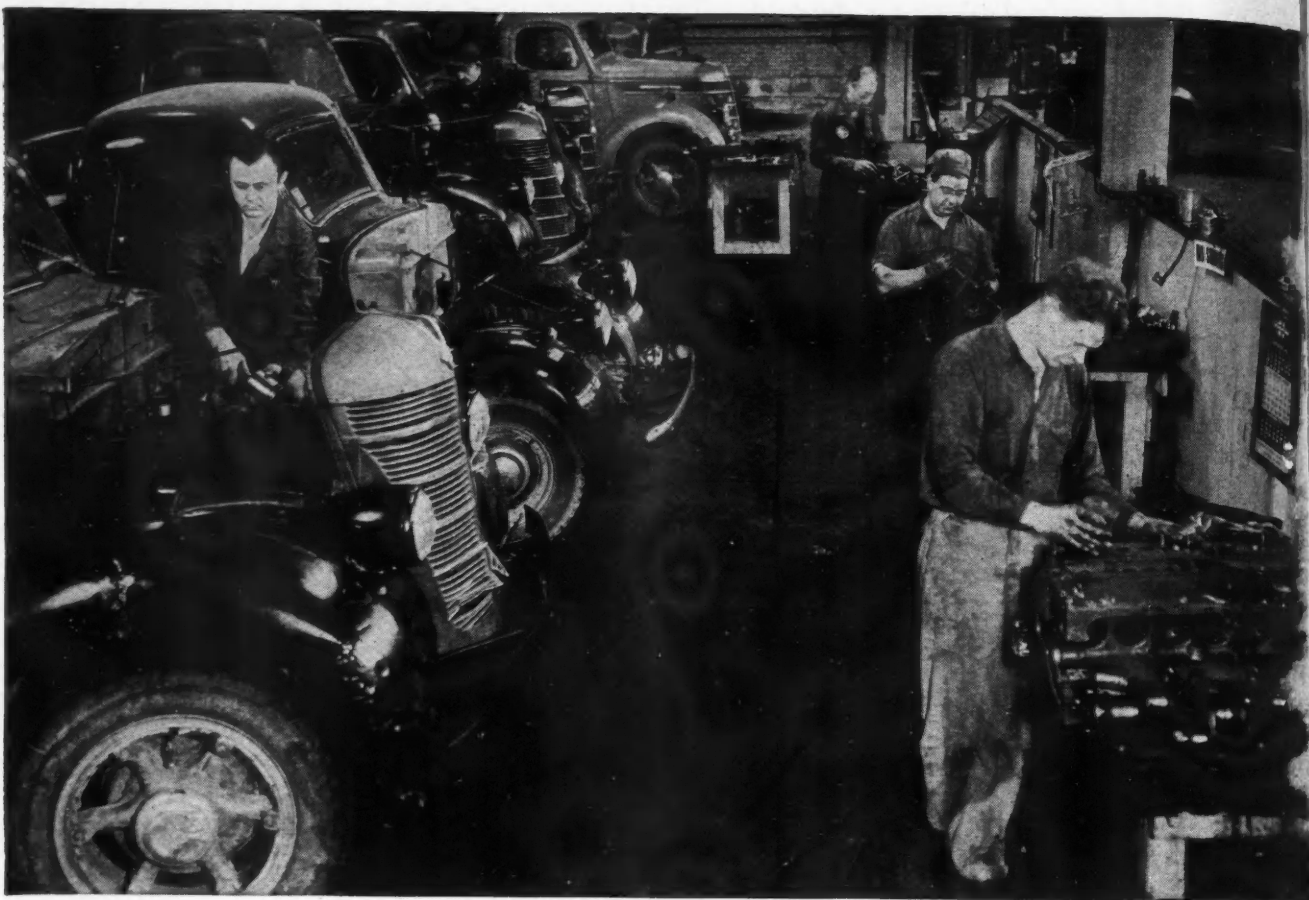
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COMMERCIAL CAR JOURNAL

Vol. LXVII, No. 5

July, 1944

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WASHINGTON RUNAROUND

Arnot Quits ODT

The item of the month in Washington was the resignation (this time for keeps) of Harold C. Arnot. Up until June 1 Mr. Arnot was director of ODT's Division of Motor Transport. As of June 1 a reorganization was effected, many responsibilities were taken from Mr. Arnot and he was made director of the Property Operations Division of the new Highway Transport Department. Out of sympathy with the reorganized setup and feeling that his talents could be put to better use elsewhere, Mr. Arnot resigned from ODT as of July 1. On August 1 he will take up duties as vice-president of the Twin Coach Co., Kent, Ohio.

The Irony of It All

The event was fraught with irony. Before his death ODT Director Eastman had been handed a reorganization plan by Mr. Arnot. This called for streamlining the Division of Motor Transport right up to and including representation on committees with other government agencies. Mr. Arnot wanted the Motor Transport Division to be able to handle motor transport matters from inception to conclusion. This called for a new administrative setup. Mr. Arnot's choice for the job of administrator was Guy A. Richardson, then director of the Division of Local Transport (trolley cars and buses). Mr. Eastman died before he could act on

Arnot Quits ODT . . . The Irony of It All . . . Candidates for the Job . . . Changes in Rationing . . . Hitch with WPB . . . Truck Output Mortgaged . . . Trailer Applications Lag . . . 5% Reservation Revised . . . 20% Overload in Jeopardy . . . Super-Eligibility List on Tires

by **GEORGE T. HOOK**

the recommended change although it is known that he did make guarded inquiries in truck quarters as to Mr. Richardson's acceptability. Mr. Eastman's death itself called for a reorganization and Mr. Richardson was made an assistant director and instructed to make administrative changes. When Mr. Richardson's reorganization plan was announced it was the opposite of Mr. Arnot's. In the new set-up, Mr. Richardson had his former job and Mr. Arnot's to boot, and Mr. Arnot, from being in charge of some 4000 employees, had under him four section chiefs and their small staffs.

Candidates for the Job

In this department's last roundup four men were in the running for Mr. Arnot's post as director of the Property Operations Division. They were H. Richard Stickel, assistant to Mr. Arnot; Alvin S. McEvoy, who had headed up the Motor Transport Division's field organization; John

G. Caley, ODT regional director at Atlanta, and Harry L. Gormley, ODT regional director at Chicago. Mr. Richardson himself was reported as favoring a truck operator and preferring to pick a man from within his organization. This would eliminate Messrs. Stickel and McEvoy. And since it has been reported that Mr. Caley does not have the support of organized carriers, the odds would seem to favor Mr. Gormley, who has a truck operation in western Pennsylvania. This much was clear, the choice Mr. Richardson makes will be his own; carrier organizations have indicated that they were not putting up their own candidates.

Changes in Rationing

As predicted here last month the ODT has taken over all of the functions of new commercial vehicle rationing, effective July 1. Henceforth operators desiring new vehicles should file their applications with one of the
(TURN TO NEXT PAGE, PLEASE)



WASHINGTON RUNAROUND

(CONTINUED FROM PAGE 35)

142 district offices of the ODT instead of with one of the 80 offices of the I.C.C. Bureau of Motor Carriers. Late in June a new truck rationing order (ODT General Order 44) was being circulated. Patterned after the original rationing order M-100, it contained several changes. The new order makes ODT district managers allocation chiefs. They can delegate the duties to others but all applications must contain their signatures. Appeals will continue to be filed through the 17 existing appeal boards. Their decisions will be final. One major change stipulates that no commercial vehicle procured under the new rationing regulations can be transferred by its owner within six months without approval of the ODT district manager. This has been one of the flaws of rationing.

Hitch with WPB

A slight hitch developed in ODT's taking over the rationing functions handled by the WPB. The latter agency has been keeping the inventory control statistics at a budgeted cost of \$75,000 per year. In submitting its budget for the next fiscal year ODT anticipated this item of expense but Congress not only slashed the \$800,000 addition which ODT sought, but tacked on another cut of \$1,000,000. ODT was reluctant to take on the inventory control statistics unless the \$75,000 cost were added to the budget. The Budget Bureau finally adjusted the matter.

For a while a rumor was cur-

rent that WPB might change its mind and retain both the inventory control function and the issuance of certificates of transfer. The astounding reason ascribed was that recent organization changes had so upset ODT internally that the Automotive Division of WPB was fearful that a demoralized ODT might make a botch of rationing and that closer supervision than ever was called for.

Truck Output Mortgaged

Applications for new trucks continue to flood the ODT. The deluge has been so overwhelming that new truck production for the next 90 days has already been allocated and 10,000 applications approved by field offices are stacked up in Washington awaiting action. Orders have gone out to the field to hold up until further notice all applications for heavy trucks.

Trailer Applications Lag

It appears to be a certainty that when 1945 trailer production is scheduled by WPB the hopes of trailer manufacturers for 50,000 units will not be realized. The figure will be more like half that number. One of the reasons advanced is that trailer applications since rationing went into effect have not been on a scale to warrant the 50,000 figure. This department checked into the matter and learned that in the 27 months since March 9, 1942, when rationing became effective, civilian users have applied for 31,250 semi- and full trailers. Field offices approved 26,560 of the applications and disapproved 4690. Of the applications approved approximately 20,000 were honored in Washington with certificates of transfer.

Civilian Ration Statistics

Here are some WPB rationing statistics which, to the best of this department's knowledge, have not hitherto been published: From the first day of rationing, March 9, 1942, to May 6, 1944, civilian operators were issued 126,295 trucks, 19,898 trailers, and 1923 third axles.

Subtracting these civilian releases from the total of all WPB releases, we find that in the same period Government-exempt agencies received 78,215 trucks, 2,656 trailers and 926 third axles.

5% Reservation Revised

There will shortly be issued a revised L-158 replacement parts order. It will contain two schedules to which many new parts items have been added. It will also include parts for light trucks. Most important of all is a section which will provide civilians with an unqualified 5 per cent of facilities or of man-hours in plants which are occupied in excess of 95 per cent with military orders. The order as revised "authorizes and directs" the 5 per cent reservation of facilities for civilian parts production. As rewritten the order has the approval of parts manufacturers and of the ODT. The Automotive Division of WPB is also back of the revision and WPB was expected to approve it even if the military persisted in their objections.

Inspection Reports Stay

ODT was all prepared to discontinue periodic truck tire inspection reporting but the Office of Rubber Director insisted that it be maintained so long as the scarcity of truck tires continues. So, in spite of the fact that it was all out of reporting forms and in the face of its own conviction that tire inspection reporting was "ineffective" as a conservation measure, ODT must continue to ask operators for their reports.

20% Overload in Jeopardy

A report was current that the Rubber Director's Office would ask ODT to remove the 20 per cent overload provisions from its conservation orders the moment truck operators start experiencing trouble with the new part-synthetic truck tires in sizes 8.25 and over.

Super-Eligibility List

There was growing concern in Washington circles over the scarcity of truck tires in the 8.25 and up sizes. OPA had reduced quotas, operators with certificates were finding it difficult to convert them into tires, emergency stocks were being eaten into and the stage was being set for a monumental headache during the summer months. There was renewed talk of formulating a special eligibility list on tires, under which certain types of carriers would get preferential treatment on the available tires.

EDITORIALS

Trucks and Trolleys or Merger in the ODT

FOR the purpose of more efficient administration the Office of Defense Transportation has effected a merger of its Motor Transport (truck) and Local Transport (bus and street car) Divisions. The result is a Highway Transport Department with five divisions. One of these is the Property Operations Division, a hollow shell of the former Motor Transport Division.

The merger was engineered by the former director of the Local Transport Division, Guy A. Richardson, who has a reputation as an able administrator. That reputation is on the verge of getting its severest test because Mr. Richardson has done two things to offend truck transportation interests. First, he has scrambled the well-integrated Motor Transport Division whereas truck interests had favored an even broader integration to afford them representation that would follow through from beginning to end on all truck problems instead of referring them to other divisions for action. Second, in the scrambling he has given four of the five key executive positions to members of the local transport industry.

Accordingly there is widespread resentment, not only in Washington and throughout the ODT field organization, but among truck operating groups. Mr. Richardson has a robot torpedo plane by the tail. He may be

able to steer it safely but then again it may explode in his face. It is one thing for him to surround himself with tried and true "trolley-car conductors" (as his executive staff is being resentfully designated in Washington) and to effect an administrative organization that looks fine on paper; it is another to have it accepted by those whose problems occupy at least 75 per cent of ODT's personnel.

Mr. Richardson and his staff of "conductors" would be well-advised to absorb quickly the problems of truck operators and to give them the concentrated attention they deserve. Otherwise the cooperation of truck operators in the attainment of ODT's objectives will be jeopardized and ODT may find itself by-passed and embarrassed, and perhaps even investigated. That last term is not idly used. Hair-curling suspicions are being voiced about the changes in ODT, and they can lead to almost anything. Truck operators will not be taken for a trolley ride.

Boycott on Conventions

THE boycott placed by ODT Director Johnson on appearance of ODT personnel at conventions is a two-way loss. It is a loss to truck operators attending industry conventions because they are deprived of the first-hand information on ODT

matters that would be given them by ODT personnel, which is now prohibited from attending such meetings if they entail train travel. It is an even greater loss to the ODT, because it has deprived itself of an important forum where the give-and-take discussion of transportation matters afforded ODT an excellent means of getting over its messages and of becoming posted on the thinking of operators.

But it is difficult to see how Director Johnson could have acted differently. He knows the problem that will confront the railroads when invasion casualties pour in. It would be fatal for him to differentiate between truck operator conventions and conventions of business groups who also operate trucks incidentally.

Director Johnson has not indicated how long the boycott will last. It seems logical to assume that it will last for the duration—of the war in Europe and of the ODT. Because when casualties cease creating a transportation problem, the European war will be over, and the end of that war will mean the end of ODT, at least in its restrictive aspects. This should be a consolation to the most rabid conventioneer.

Smothered in Silence

IT is heartening to note that in their discussions of post-war trucks the designing engineers are not overlooking the need for eliminating the offensive noises caused by motor trucks.

Ear-splitting exhaust noises and nerve-jangling gear gratings are major factors in the negative attitude toward trucks held by a large segment of a public that likes to sleep in peace and quiet and even to spend waking hours in the midst of a reasonable facsimile of the same. Silencing of trucks will silence a lot of critics.

Noise-abatement in trucks cannot be realized overnight. But it would be well to begin the smothering with post-war designs. Drivers will be for it; owners will be for it because it will mean better public acceptance and perhaps lead to removal of uneconomic restrictions; and truck manufacturers should be for it because it should prove to be a major promoter of truck obsolescence. Proving again that silence is golden.

"There are three cardinal principles to be observed in connection with synthetic rubber, truck tires: First, proper loads and proper loading; second, reasonable speeds; third, careful maintenance.

"When loads become excessive . . . failures accrue with synthetic rubber tires in short distances. These tires are more susceptible to heat than their natural forerunners.

" . . . not only avoid unreasonable overloading of a truck as a unit, but also must distribute each load evenly so that no one or more tires are subjected to undue punishment.

"As synthetic rubber tires become hotter from high speeds, the tread rubber is softened.

"An important factor in increasing the potential mileage from synthetic rubber, truck tires is proper inflation.

"Another important point in proper truck tire care is periodic inspection of the rims.

"One more important point in proper tire care is cross switching."

The foregoing are but a few of the "musts" pointed out by the author as essential to maximum life of synthetic rubber, truck tires. Proper maintenance also is covered in a practical manner.



J. E. McCarty

THERE are three cardinal principles to be observed in connection with synthetic rubber truck tires:

First, proper loads and proper loading; second, reasonable speeds; third, careful maintenance.

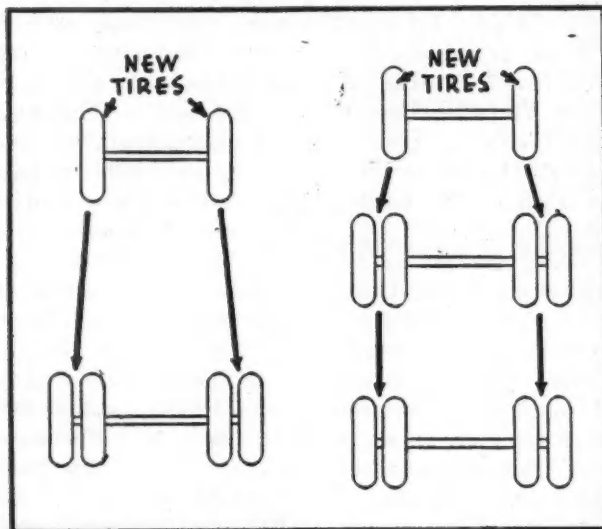
The matter of load—the total amount per truck and its distribution on the tire units—is of prime importance to any truck owner or truck fleet operator; a subject whose importance is increased with advent of synthetic rubber truck tires. Even

"MUSTS" to Get Most Out of Synthetics

Expert gives suggestions for installation, care and repair of GR-S tires, especially appropriate for summer operation, with special emphasis on practices to be avoided

by J. E. McCARTY

Manager, Truck & Passenger Tire Design, Goodyear Tire & Rubber Co.



Recommended procedure for tire rotation: Trucks—New tires on front wheels. After a few thousand miles (about 1/3 service), change to inside or outside rears depending upon tire with which it is to be mated. Semi-trailer combinations—New tires on front wheels. After 1/5 of total service change to inside or outside driving wheels. After 3/5 of total service, wear out tires on trailer wheels

before the war, truckers were well aware that consistent overloading decreased the life expectancy of even natural rubber tires, both from the standpoint of increased tread wear and because of the increased inci-

dence and probabilities of carcass ruptures.

When loads become excessive, such as consistent overloads of 50 to 60 per cent, failures accrue with synthetic rubber tires in short distances.

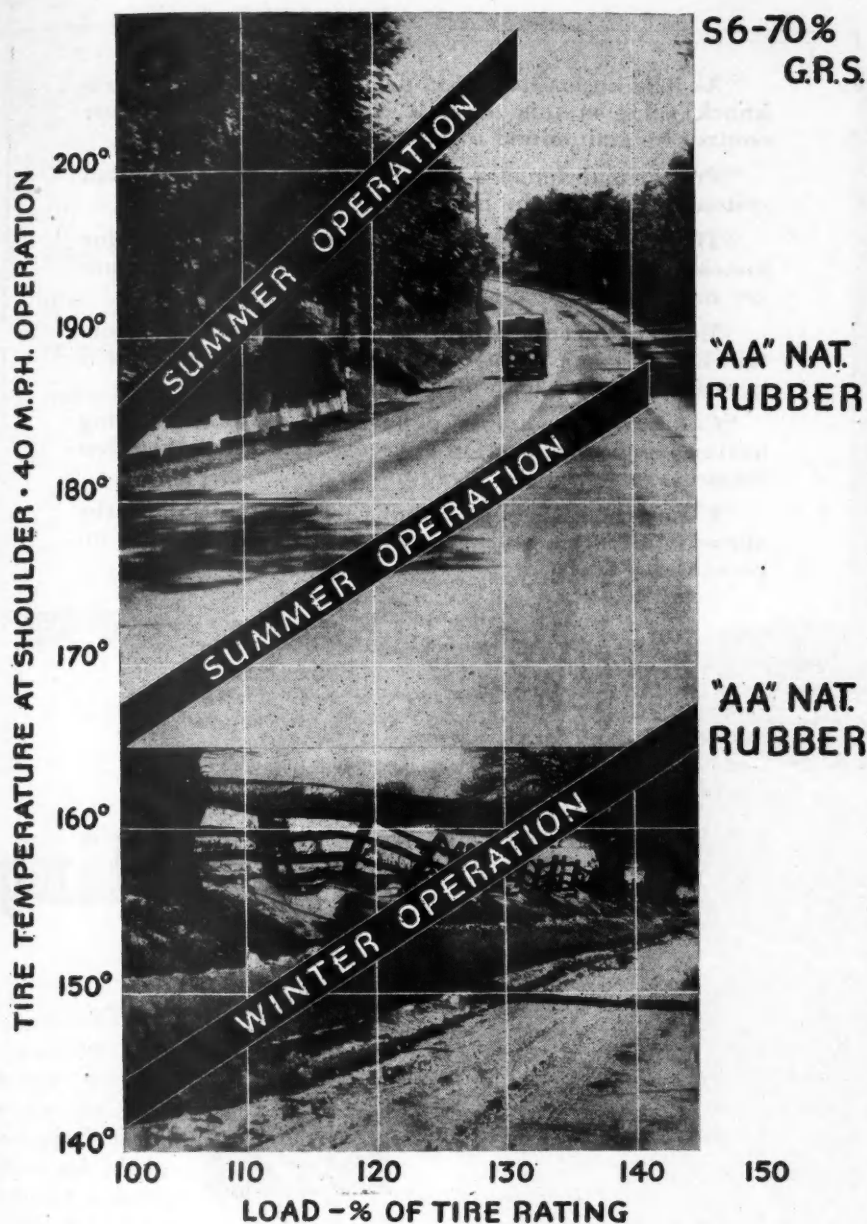


Chart above shows effect of load on tire temperature of "AA" natural rubber and S6 (70 per cent GRS) tires, with emphasis on summer operation. Even at 100 per cent load, synthetics generate as much heat as naturals at 132 per cent

These tires are more susceptible to heat than their natural rubber fore-runners. The rate of strength loss is much greater under high flexing than with natural rubber.

Operators can lower their tire costs and insure delivery of cargoes on time by judicious truck loading. This means they must not only avoid unreasonable overloading of a truck as a unit, but also must distribute each load evenly so that no one or more tires are subjected to undue punishment. For instance, as a unit, a truck may be so loaded that the total overload is not more than 10 or 15 per cent, and yet an individual tire, or several tires, may bear an

overload of 50 and even 100 per cent. In a case such as this, a tire failure is almost certain. Then the sudden shock of failure may transfer the load to another tire with great abruptness. As a result, this latter tire breaks down immediately or is injured permanently, probably inducing still another failure later on.

Then, too, a synthetic rubber, truck tire's period of usefulness decreases in direct proportion to increases in the speeds at which it is driven. Although speed is likewise important in the case of passenger automobile tires, it's doubly important in the case of truck tires because of the loads they carry.

Heat Softens Tires

As the synthetic rubber tires become hotter from high speeds, the tread rubber is softened. Faster wear is thus induced. Higher speeds also mean more tire-wearing friction between the tire and the road, more scuffing off of tread rubber. In addition, excessive speed on curves develops a sidewise force which produces strains on the sidewall structure.

Closely related to this problem of higher speeds is the one of sudden stops. Naturally, higher speeds are going to mean more braking effect when it is needed. Frequently, this excess of braking power is applied in the same brief period in which, if the driver had been going more slowly, less power would have been needed.

The result of excessive braking power is tires dragging on the roadway, creating friction which literally grinds off tread rubber and, again, reduces tire mileage.

Truck fleet operators would be doing themselves and the country a distinct service if they would caution their drivers repeatedly to slow down for signal lights and to bring their vehicles to slow, gradual stops. Tire wear is thus avoided which shortens the life of tires and wastes critical rubber.

Under-Inflation Overheats

An important factor in increasing the potential mileage from synthetic rubber truck tires is proper inflation. An under-inflated tire generates excessive heat because of unnecessary flexing, thus weakening and breaking down the tire body. Too little air also causes rapid and irregular tread wear.

Over-inflation causes wheels to bounce and spin and puts only the center of the tread in contact with the road, causing rapid tread wear in this area of the tire, too. A "hard" tire also cuts and bruises more easily.

Alert truck fleet operators, therefore, will make it a point to have the pressure maintained carefully in their tires; to have the pressures checked often and brought up or reduced to the level which is recommended by tire manufacturers for each size.

Taking 30,000 miles as the relative base of wear for a tire inflated (TURN TO PAGE 96, PLEASE)

"As it is impossible to hope for fuels of better anti-knock value at this time, it is necessary that proper control be maintained over engine conditions.

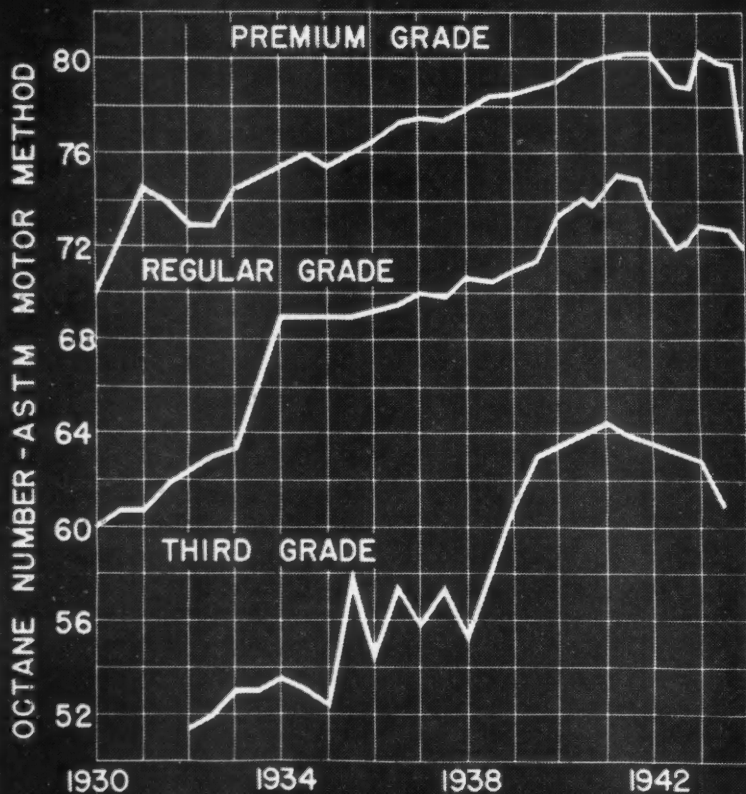
"Proper maintenance and adjustment of the ignition system is perhaps the most important.

"The effect of jacket water temperature on engine knock varies considerably but, in any case, hot engines are more prone to knock.

"Most carburetor adjustments have been made to obtain improved economy and, in general, have resulted in some decrease in power output.

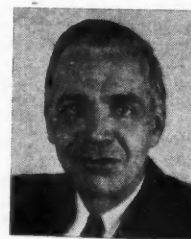
"Combustion chamber deposits accumulated during normal engine operation increase antiknock requirements.

"Experience has shown that careful attention to the above items often will assure satisfactory operation on present-day fuels."



The trend of antiknock quality of automobile engine fuels over a 14-year period. The most recent survey shows wartime fuels conform to government regulations

Controlling



E. C. Paige

AT THE time of our entry into the war, regular and premium grade fuels were of the best quality that had ever been supplied for use in passenger

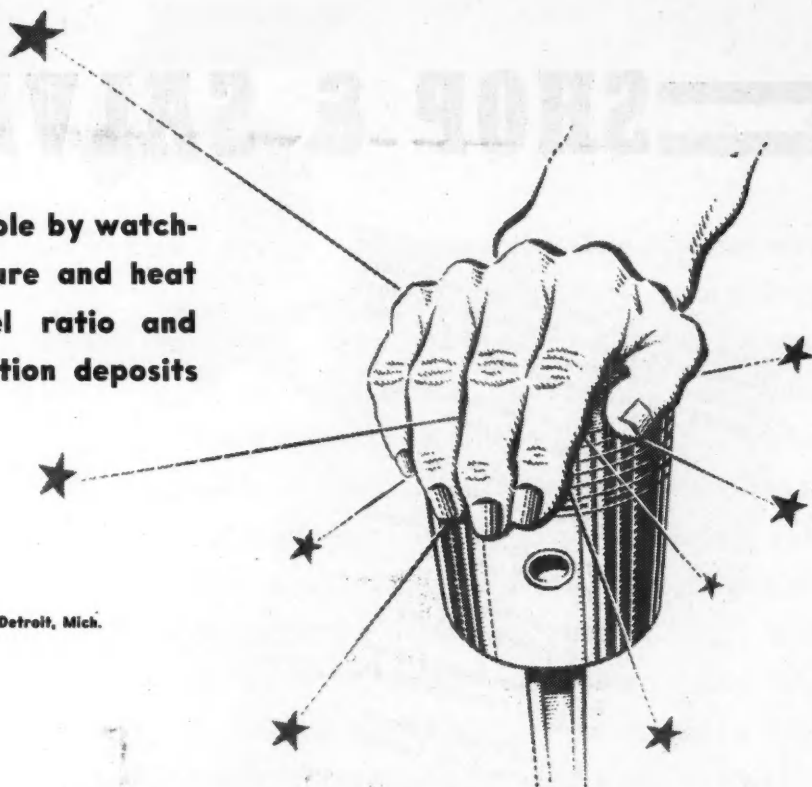
or commercial vehicle service. Anti-knock value in particular was at its peak, with regular grade having a nationwide average of 75 octane number and premium grade an average of 80 octane number, as shown by the accompanying chart.

The tremendous demand for fuel by the ground and air forces of our armed services, and those of our allies, made it necessary to reduce the antiknock value of civilian fuels through rationing of the quantity of Ethyl fluid used and the removal of certain high antiknock components of the fuel itself. Due to the time required to build new plants to produce the necessary quantity of aviation fuel, there was not an immediate drop in antiknock value, and it was not until last November that it became necessary to limit the quality of

Improved combustion obtainable by watching ignition, jacket temperature and heat rejection, carburetor air-fuel ratio and manifold distribution, combustion deposits

by E. C. PAIGE

Technical Service Department, Ethyl Corporation, Detroit, Mich.



Knock Caused By Degraded Fuel

civilian fuels. At that time orders were issued from Washington to the effect that the maximum octane number permissible for regular grade civilian fuel would be 72, and that of premium grade would be 76. The most recent survey of civilian fuels, made in May, shows that the oil companies are able to supply fuel of this quality.

The drop of three octane numbers in regular grade fuel, and four octane numbers in the quality of premium grade fuel is not as great as had been predicted from time to time. If no other changes had been made in operating conditions, most engines could have been operated on present fuels with minor losses in power and economy by retarding the spark to eliminate detonation.

It is necessary to emphasize the fact that almost everything that happens to an engine during normal service raises its antiknock requirements without adding to power output. As long as the fuel has a slight excess in antiknock value, over and above that required for normal operation, some conditions can be tolerated that would otherwise result in harm-

ful detonation. The excess in antiknock value was the safety factor. At 72 octane number there is no leeway, and servicing procedures must be much more accurate in order to attain a reasonable degree of satisfactory performance.

As it is impossible to hope for fuels of better antiknock value at this time, it is necessary that proper control be maintained over engine conditions that tend to increase antiknock requirements without adding to power output. The most important engine factors that have an effect on engine octane requirements are:

1. Ignition system,
2. Jacket temperature and heat rejection to the coolant,
3. Carburetor air-fuel ratio and manifold distribution,
4. Combustion chamber deposits.

Ignition Most Important

Proper maintenance and adjustment of the ignition system is perhaps the most important from the standpoint of control and effect. Tests on hundreds of vehicles by various laboratories indicate that a one degree change in basic spark

timing will change the average engine requirement by $1\frac{1}{2}$ octane numbers. Thus a two or three degree error in spark setting may have more effect on knock than the reduction in fuel octane number occasioned by war requirements.

As the octane requirement of an engine is determined by the cylinder, or cylinders, most prone to knock, it is necessary to be certain that there is very little variation in timing between cylinders. Such variations are usually caused by a worn or irregular distributor cam, and have been found to cause four or five degrees difference in timing between cylinders which may result in an additional increase in antiknock requirements of three to five octane numbers. These conditions are readily found when testing distributors on a good distributor test bench.

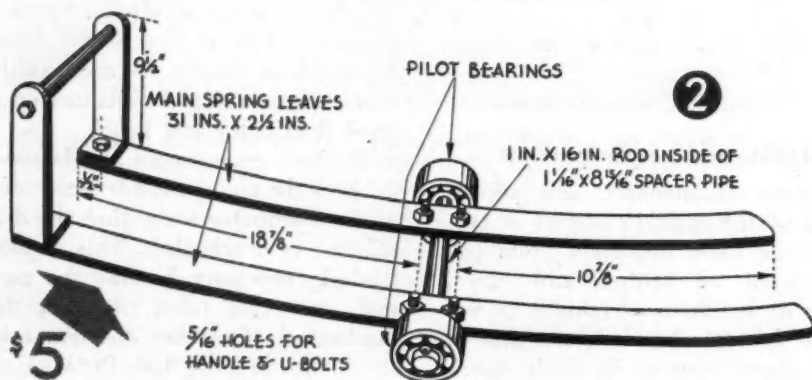
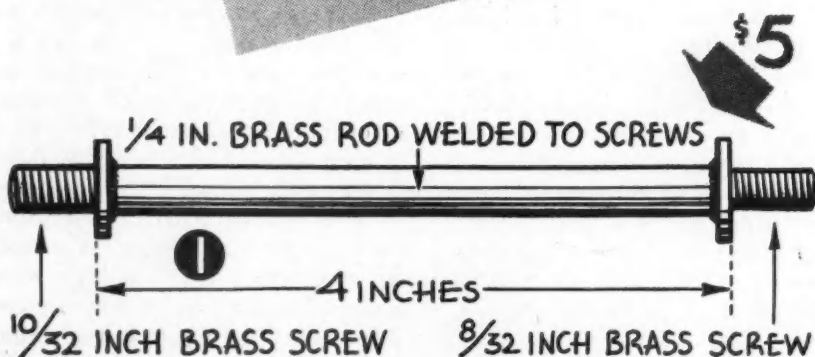
The test bench should also be used to check the automatic advance curve of the distributor every time the distributor is overhauled. This is particularly necessary because the normal wear that takes place in the mechanism allows the distributor to

(TURN TO PAGE 108, PLEASE)

SHOP & SALVAGE HINTS

Fleet mechanics are devising ingenious methods of solving the parts shortage problem. Here are 11 clever tips that should find use in most shops.

1. Regulator Test Screw
by Frank P. Molnar
2. Dual Wheel Dolly
by Erwin W. Nagel
3. End-Plate Bushing Removal
by Budd Shaulis
4. Water Pump Repair
by John L. Scruggs
5. Counter Gear Repair
by T. H. Sompayrac, Jr.
6. Dual Pulley Salvage
by Earle V. N. Leavitt
7. Synchro-Mesh Gear Salvage
by E. T. Tompkins
8. Headlight Socket Salvage
by Budd Shaulis
9. Rear Spring Hanger Repair
by G. E. Upperman
10. Trailer Bolster Clamp
by E. F. Reiska
11. Salvaging Pilot Bearings
by A. A. Suggs



1. Regulator Test Screw

by Frank P. Molnar
Frank Molnar Service, Euclid, Ohio

To make it easier to connect test volt and ammeter leads to the regulator and prevent grounding, I made an extension screw which I find a very convenient aid when checking a regulator setting.

As the sketch will show, the screw can be made either by welding two different screws to a rod or by turning a rod on a lathe and threading the ends.

When checking a regulator setting, I simply remove the screw from the battery terminal of the regulator and replace it with this one.

2. Dual Wheel Dolly

by Erwin W. Nagel
International Harvester Co.,
Allentown, Pa.

Illustrated is a dual wheel dolly which we have been using for nine months, and which we have found to be a great time and back saver.

This dolly was made entirely from discarded material — two, 2 1/2-in. spring leaves; one, 1x16-in. rod with a 1 1/16x8 5/16-in. spacer pipe; two, 1 7/8-in. U-bolts with 5/16-in. SAE nuts; two, clutch pilot bearings; two, 1/8-in. cotter pins; and one, 5x7/16-in. bolt with a 3 7/8x1 1/2-in. spacer pipe for the handle.

To use the dolly we jack the wheels about three inches from the floor, move the dolly under the tires, drop weight on the dolly and remove lugs. To remove the wheels, we place the right hand on the dolly handle, the left on the outside tire and roll away.

As constructed, this dolly will handle any tire from 6.00x20 to 11.00x24, and it can be used successfully on our KR11 models.

3. End-Plate Bushing Removal

by Budd Shaulis
Continental Baking Co., Norristown, Pa.

In removing end-plate bushings on generator and starter motors, where it is impossible to drive them out, we find the following procedure effective.



\$5

tive. We take a tap and cut a thread in the bushing to about half its length. Leaving the tap in the bushing, we clamp the end of the tap in a vise. Then we take a punch and, working as close to the bushing as possible, drive the end plate off. When a new bushing is replaced, the end plate will be as good as new.

4. Water Pump Repair

by John L. Scruggs

Pacific Motor Trucking Co.,
Eugene, Ore.

I am using an electric valve reseating tool successfully for making a sealing seat when rebuilding packless type water pumps.

A valve seat finishing stone of suitable size is installed upside down on a Little Sioux or similar type spindle. A suitable bushing is inserted into the pump body to allow the use of a pilot to insure a perfect 180 deg. seat.

The stone can be refaced at 180 deg. by most valve reseating tool stone dressers.

5. Counter Gear Repair

by T. H. Sompayrac, Jr.

Duval Laundry, Inc., Jacksonville, Fla.

To repair a Chevrolet counter gear where the teeth are good but the bushing worn out, in a three-speed transmission of the 1937 to 1939 models, we use a bushing from a four-speed Chevrolet transmission—part No. 590236 out of the reverse idler gear.

We press out the worn bushing, insert the new and drill a hole on one side. Then we take a punch, insert into the hole, and drive the punch to lock the bushing on the other side. After that we ream to fit.

6. Dual Pulley Salvage

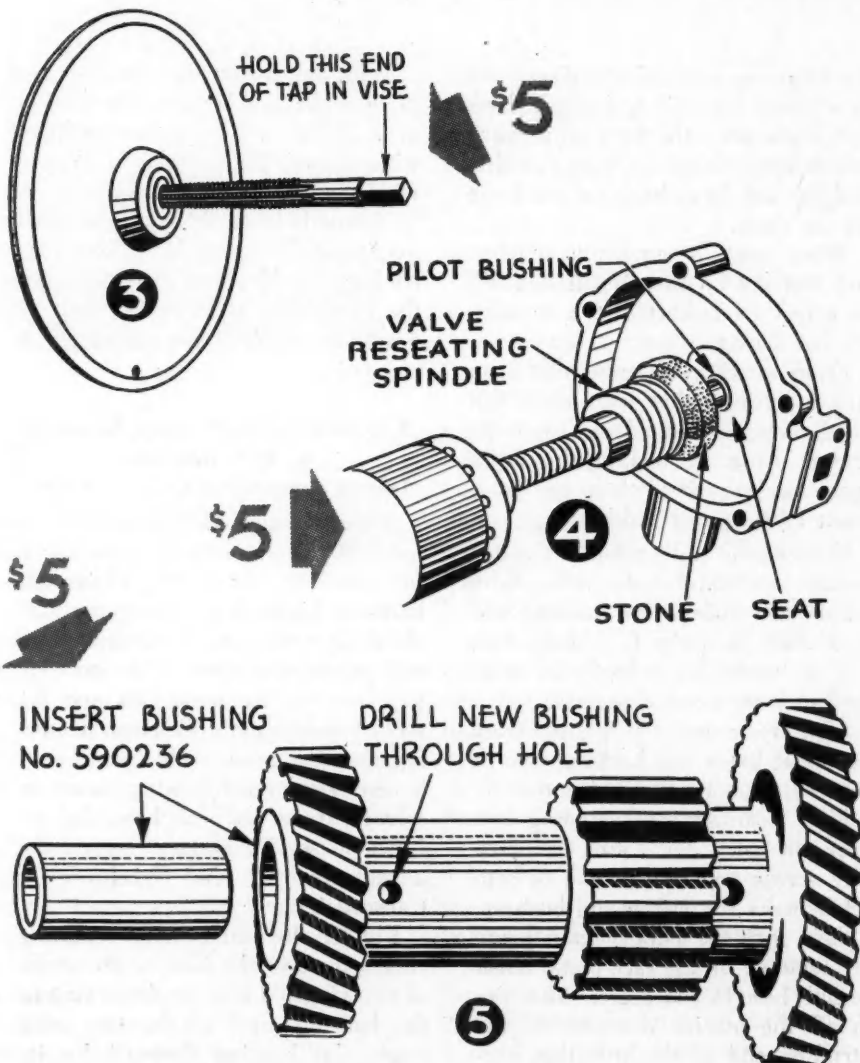
by Earle V. N. Leavitt

Lake County Road, Comm.,
Baldwin, Mich.

Occasionally, on some one of our truck engines, the dual groove fan and compressor drive pulley will lose
(TURN TO NEXT PAGE, PLEASE)

Commercial Car Journal will pay \$5.00 for acceptable shop hints and \$5.00 for unusual parts salvage tips.

Send in as many ideas as you have to the editor. Don't underestimate your ideas. Let the editor be the judge. A photograph or a rough sketch and simple explanation in your own words are enough. CCJ will polish them up for publication. Use this opportunity to earn extra money to buy more War Bonds to "Back the Attack."

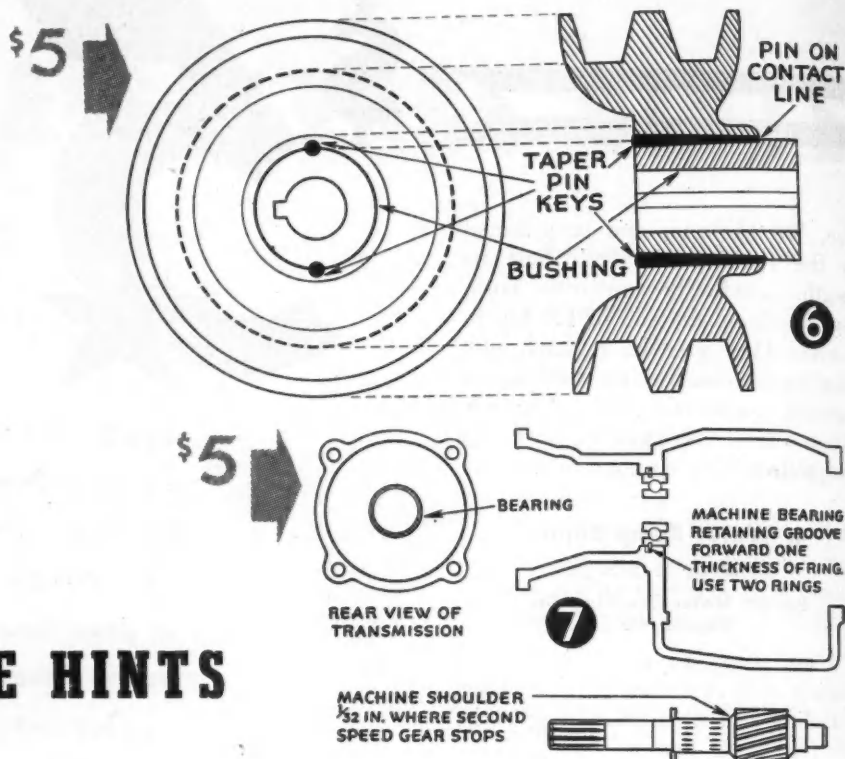


\$5

Commercial Car Journal will pay \$5.00 for acceptable shop hints and \$5.00 for unusual parts salvage tips. Send in as many ideas as you have to the editor. Don't underestimate your ideas. Let the editor be the judge. A photograph or a rough sketch and simple explanation in your own words are enough. CCJ will polish them up for publication. Use this opportunity to earn extra money to buy more War Bonds to "Back the Attack."

SHOP & SALVAGE HINTS

(CONTINUED FROM PAGE 43)



the retaining nut. If not discovered in a short time, it will jiggle back and forth until the keyway is worn two or three times the normal width, and the hub bore becomes too large for the shaft.

When such a condition obtains, and you get no promise of delivery on a new part short of two months, try this salvage stunt.

From a piece of scrap cast iron turn a bushing that will, when finished, have a wall thickness twice the keyway depth. In making this bushing, leave enough stock in the bore, about 1/16 in., for finishing.

Next attach and center the pulley on the face plate of the lathe. Bore out the old hub so the bushing will be a .002 in. tight fit. More than .002 in. undersize is likely to crack the hub when pressed together.

After removing the pulley from the lathe, press the bushing into it and key them together. Do this by drilling, reaming, and pinning two taper pin holes, No. 1 size, diametrically across and on the line of contact between the pulley and bushing.

Now, with the pulley again properly centered on the face plate, finish the hub bore to shaft size. Also, finish off the outside diameter of the extruding end of the hub, that portion upon which rides the oil seal.

With the work still on the face plate make the headspindle stationary. Mount a boring bar equipped with a tool bit ground to keyway width and of the correct shape to cut horizontally when the carriage is run longitudinally up to the work and back again. Move the cross feed into the work about .005 in. for each cut until the required keyway depth is reached.

7. Synchro-Mesh Gear Salvage

by E. T. Tompkins

Texoma Natural Gas Co., Fritch, Tex.

After about 40,000 miles and upward, the synchro-mesh transmission in our 1940 and 1941 Chevrolets locks in high gear because the synchronizing cones and their seats wear and permit the cam of the cone to slip between the mainshaft and the second-speed gear. This synchronizing gear has been unobtainable, so I have devised the following means to salvage these units to keep the vehicles in service and still retain the advantages of the synchro-mesh transmission.

I widen the rear bearing retaining ring groove in the case to the width of two rings. I seat the front ring in the bearing, and let the rear ring space the bearing forward by its width. Then I grind 1/32 in. off the

shoulder of the mainshaft, where the second-speed gear runs, thus allowing the second-speed gear to go forward 1/32 in. Next, I make a steel washer, 1/32 in. thick, to go between the second-speed gear and the thrust washer.

These operations move the second-speed gear sufficiently forward to permit the use of the old synchronizing gear assembly for approximately the same number of miles before the same thing can happen again.

8. Headlight Socket Salvage

by Budd Shaulis

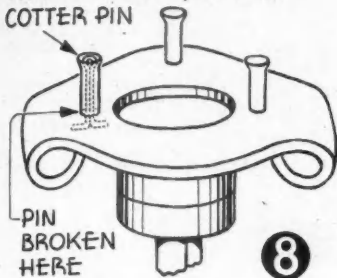
Continental Baking Co., Norristown, Pa.

Ford headlight sockets, 1935 to 1940 models that use the shielded bulbs, have three prongs that hold the bulb. When one of these breaks, it causes the bulb to spring out on one side and away from the contact points. We have repaired these without replacing the wire assembly.

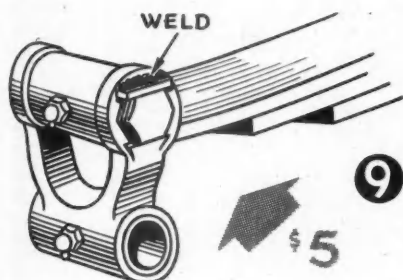
It will be noticed that the head of a broken prong has a hole through it. Therefore, the top of the prong can be cut off and a 1/64-in. cotter pin inserted in the hole at the head and pushed through the hole into the socket. By pushing the spring steel in on the back of the socket flush with the other two, and bending the cotter pin around the spring steel on

\$5

CUT OFF FLUSH WITH THIN PART & INSERT $\frac{1}{64}$ INCH COTTER PIN

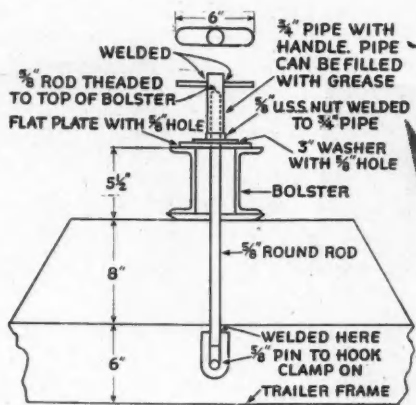


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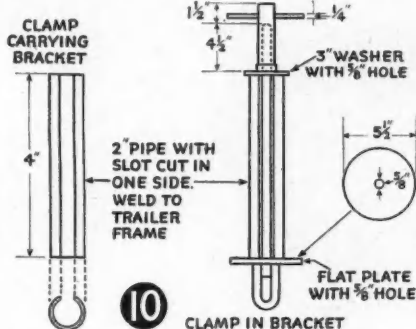


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\$5

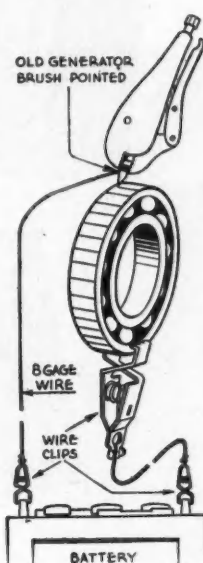


\$5



10

CLAMP IN BRACKET



\$5

11

the back, a permanent repair is made.

If the head is broken, we use a plain cotter pin and, after inserting it into the socket, twist the cotter pin head a quarter turn so that it will be crosswise on the shield. A round head cotter pin is better for this repair than the half-head type.

9. Rear Spring Hanger Repair

by G. E. Upperman
Continental Baking Co.,
Wheeling, W. Va.

Some rear spring hangers have a foot at the lower part of the spring bolt to keep the bolt from turning in the hanger and to allow it to wear in the bushing. As the spring tends to exert an upward pressure on this bolt, the smallest amount of wear allows it to depart from the foot, and to oscillate, which eventually wears the hole oblong.

By the addition of a plate welded on the top side, as shown in the accompanying illustration, the bolt is prevented from turning. This also provides additional bearing surface for the bolt.

10. Trailer Bolster Clamp

by E. F. Reink

The East Ohio Gas Co., Wooster, Ohio

Our truck drivers had to chain and boom the bolster on trailers, when

running empty, to prevent it from vibrating, turning and jumping around, which caused much wear on the pin. This was not very satisfactory as vibration eventually would loosen the chain.

The accompanying drawing shows a trailer bolster clamp which we designed for this purpose and have found very satisfactory.

The clamp consists principally of a $\frac{5}{8}$ -in. rod, with a U-hook welded on one end and the other end threaded, and a $\frac{3}{4}$ -in. pipe handle to which is welded a $\frac{5}{8}$ -in. U.S.S. nut. The hook is attached to a $\frac{5}{8}$ -in. pin on the trailer frame and the handle tightened. This keeps the bolster tightly in place. We found that it is better to have two clamps on each trailer.

These clamps are made of scrap material with little labor. We have been using them for some time and

find that our drivers are very enthusiastic about them.

When the trailer is loaded, the clamp is carried in a 2-in. slotted pipe welded to the side of the trailer frame.

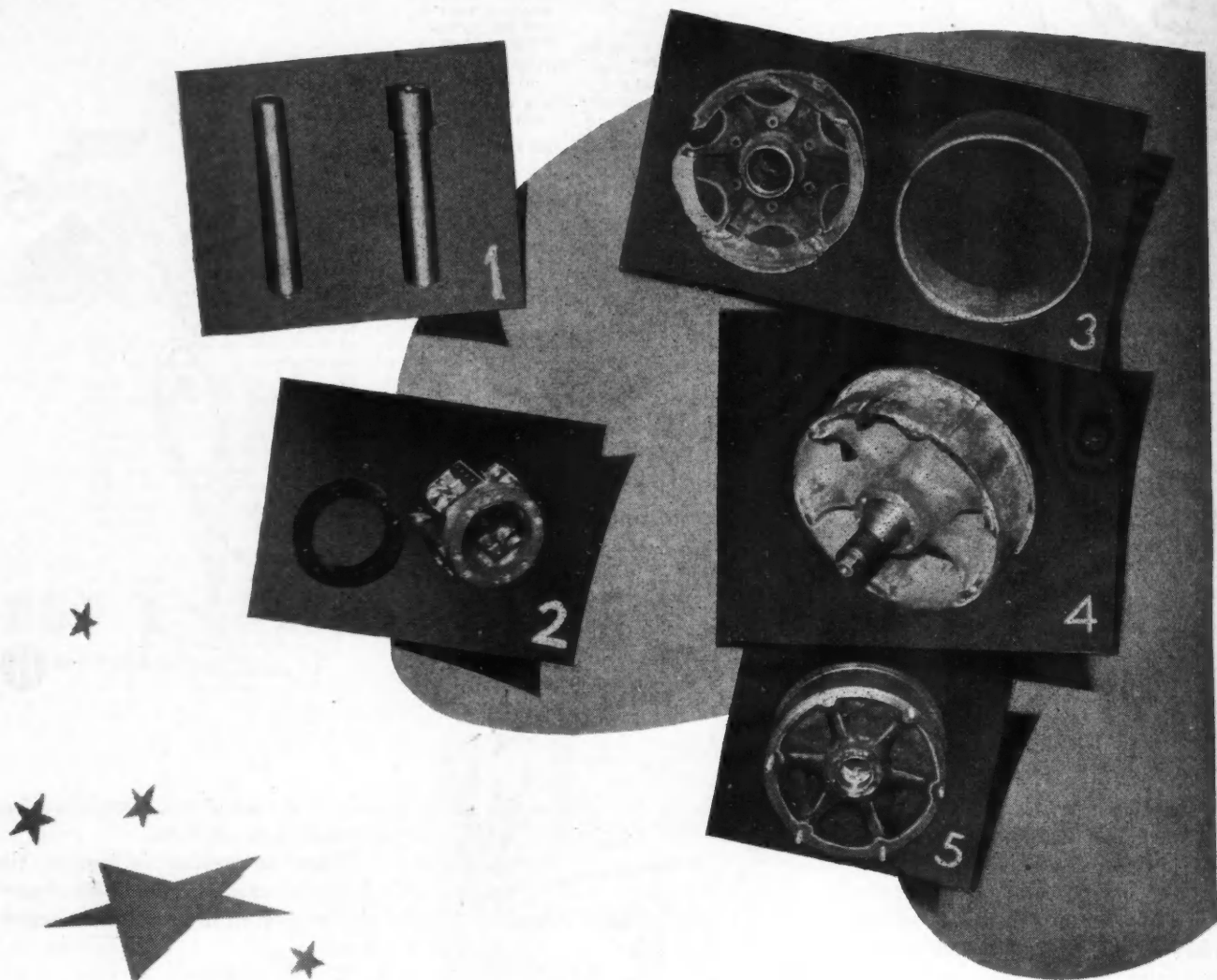
11. Salvaging Pilot Bearings

by A. A. Suggs
Cain's Truck Lines,
Oklahoma City, Okla.

For some time, I have wondered what could be done to tighten transmission pilot bearings that were loose in the main drive gear recess. The surface of both being hard, it is not possible to knurl, and welding is both dangerous and expensive. Then I discovered that the slightly raised surface caused by marking with an electric pencil will so alter the dimension that the bearing can be tightened in its recess.

For the pencil, I use an old generator brush, sharpened to a point and fastened to an eight-gage wire with vice grip pullers, which also serve as a handle. The hook-up is shown in the accompanying drawing. Current is supplied by a six-volt battery.

Markings can be made either on the bearing or the bearing recess, and should be drawn parallel with the bore. Spacing of the marks govern the size.



Necessity may have mothered the various jobs outlined in this article, but prompt decision to do something about a bad situation was responsible for this program, which has been in force since the early days of the war and which enabled this fleet operator to maintain his schedules.

King pins, brake pins, etc., from discarded axle shafts; mufflers, wheel rims, emergency brake holder, etc., cut and rolled out of flat metal stock—these are but a few of the many parts that came out of this fleet shop to keep its vehicles rolling.

Most fleet shops have a fine assortment of tools and suitable equipment to do similar work and, thereby, prevent serious truck tie-ups. The methods and general procedures are explained in detail in this article.



M. Greenberg

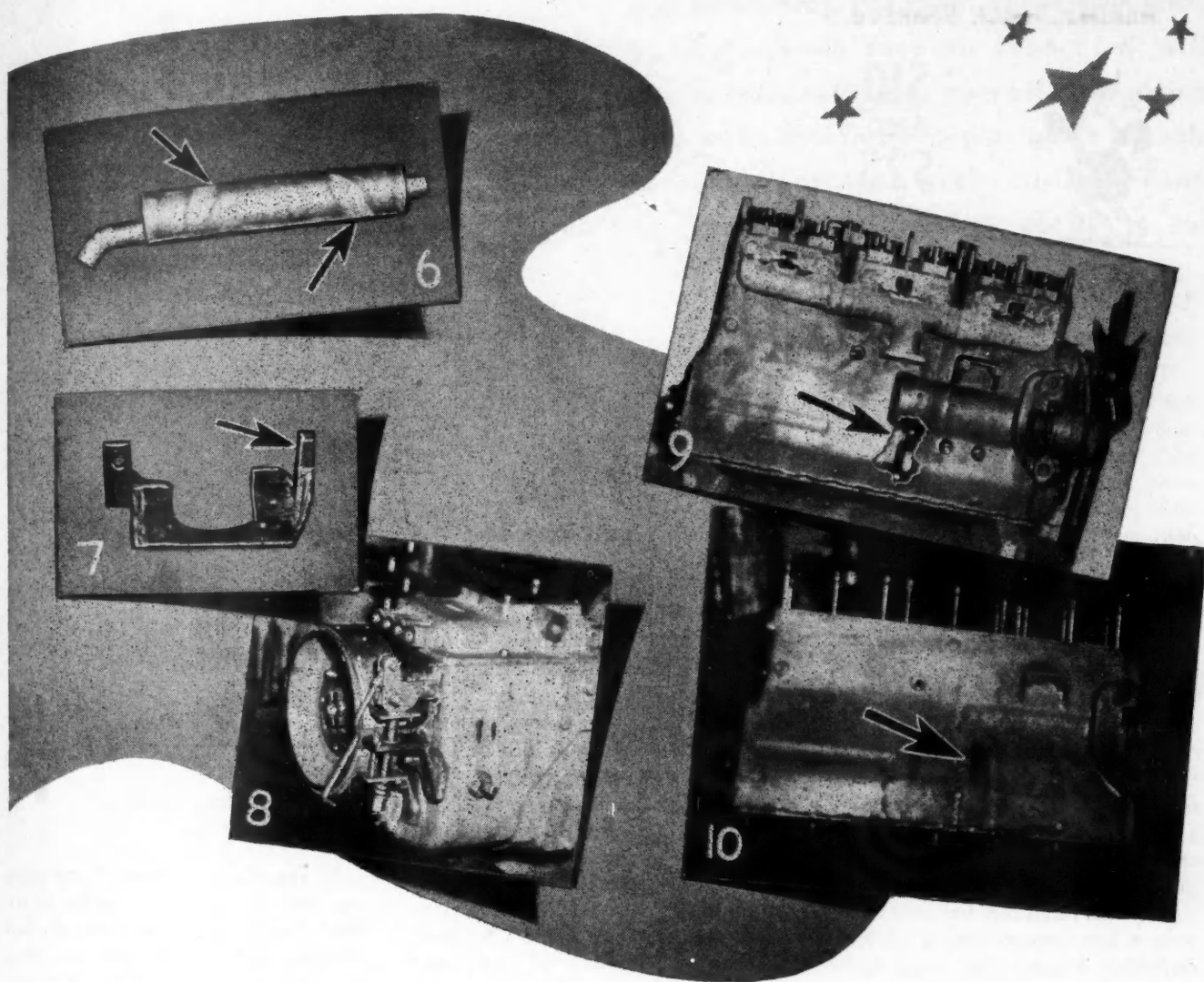
WE, AT the Werner Transportation Co., have practically gone into the manufacture of truck parts, with the result that, since the war started, we have lost little time with our trucks because of the shortage of parts. We have made or reprocessed, in our shop, such parts as front axle king-pins, trailer axles, axle housings, Bendix drives, starter housings, armature shafts, generator and

starter brush holders, wheels, clutches, clutch throw-out bearing shafts, fly-wheels, and many other items used on trucks and trailers. Most of this work was done on a lathe, or welded, and then turned on the lathe. Some of the work was just welded and then filed or ground until it was completed.

In our shop, we were relatively fortunate due to the fact that we were equipped with three lathes—a small armature lathe a 14-in. lathe and a 22-in. lathe. We also have a milling machine, two drill presses, a 60-ton hydraulic press, and the various small tools that are used in most machine shops.

* Excerpted from a paper presented at the meeting of the Safety and Operations section of the American Trucking Associations, Inc., in Cincinnati.





Foils Fleet Paralysis*

We have found that some of the items we manufactured or reprocessed in our shop cost more than those purchased from the manufacturer but, as our chief concern was in keeping equipment moving, the additional expense was considered to be secondary. We also found that some of the items we made or reprocessed were better than those purchased from the manufacturer.

1. King Pin

For example, Fig. 1 shows a finished king-pin and one partly finished. In making these pins, we have used old axle shafting. The shaft was chucked-up in the lathe, and cut

to about .002 over the size of the finished pin we desire. We then ground in the finished size. (In this way, incidentally, we are also able to

make over-size pins wherever necessary.) These king-pins are standing up better than factory-made pins. (TURN TO PAGE 72, PLEASE)

Road failures and time loss kept at minimum as resourceful mechanics employ scrap materials, worn and discarded parts to keep vehicles moving; 18 specific jobs cited

by M. GREENBERG

Superintendent of Maintenance, Werner Transportation Co., Minneapolis, Minn.

Smaller Truck Wanted



**\$10
AND
\$25
BOND**

THE GRIPE DEPARTMENT,

DEAR SIRs:

The growth of long distance trucking in recent years has created a demand for constantly larger trucks with larger tires and higher and wider cabs, to the point that such units are too large for ordinary city deliveries and traffic.

There is a big potential demand for trucks designed exclusively for local deliveries. Our city of approximately 300,000 people, or 60,000 dwelling units, with average climate, annually licenses 600 coal trucks or about one truck for every 500 people. Leaving out the southern states, we estimate there must be 200,000 retail coal trucks in the United States, and over a million trucks engaged in all lines of local deliveries, a sizable demand indeed.

Since the retail coal business represents a large proportion of all local deliveries, it seems that a coal dealer in a representative city might make suggestions on urban delivery requirements which would fit the needs of many other lines.

We have to get into many tight places with sizable loads, through small garages, narrow alleys, around corners and even passing in alleys. Our commonest problem is delivery through small garages, some with 6 ft. 6 in. x 6 ft. 6 in. doors and seldom over 7 ft. x 7 ft. These figures can be checked with any home builder. We also must traverse without damage ribbon driveways and back over lawns where dual wheel trucks are almost essential.

Here are typical sizes for coal trucks: A 2-ton net load (80 cu. ft.) for the above reasons must now be mounted on single rear tires 32 x 6 10-ply or larger, but would be stuck less often on lawns and muddy places if dual wheels were possible. The smallest over-all width on a 1½-ton truck with single wheels is 6 ft 2¾ in. wide by 6 ft. 3 in. high, barely small enough to go through the ga-



**THE
GRIPE**

rages mentioned above. A 4-ton load (frequently made up of two 2-ton orders) amounts to 160 cu. ft. and must travel on dual wheels not less than 32 x 6 10-ply. These wheels with the closest possible fitting now require an 86 in. minimum width, too large for a 7-ft. garage opening, and a cab frequently 6 ft. 8 in. high when empty. The cab-over-engine model is, of course, impractical.

Couldn't we have trucks for 2-ton loads not over 6 ft. 3 in. wide with dual wheels 6.00 x 16 6-ply, and larger units not over 80 in. wide over-all to accommodate the 32 x 6 10-ply dual tires? Couldn't we have cabs not over 6 ft. 3 in. high when the truck is empty or light? If so, we could save much lost time on loads returned and extra cost for wheeling with a wheelbarrow.

We believe dealers in lumber, furniture, household accessories, ice, ice cream, groceries and many other lines would concur in our plea, as well as wholesalers who must deliver to dealers under ramps and canopies and through crowded alleys.

As to wheelbase and over-all length, coal dealers are used to present standards and find the short wheelbase practical. Other lines such as lumbermen might want longer trucks.

May we not after the war hope for more compact units for city deliveries and then give the cross-country trucks all they want in size, comfort and safety? The same sized units, it seems, will no longer do for both conditions.

ELMER MCPHEE,
Retail Manager, The Colorado &
Utah Coal Co., Denver, Col.

Driveshaft Spline



\$10

THE GRIPE DEPARTMENT,

DEAR SIRs:

In regards to "Gripes" we have one that is more than a gripe to us. Why don't truck manufacturers put a spline on the driveshaft just after the transmission so that the transmission can be taken out without having to drop the emergency brake and center driveshaft bearing assembly? This costs us much money in labor and the tying up of equipment, and it doesn't quite agree with our mechanics, as you would readily see if you could hear the choice names they call the truck makers or designers. We know that they, in order to meet competition, have done away with the spline and one driveshaft bearing. So please tell them to put it back and we'll gladly pay the difference. In fact it costs us more at present.

J. LESLIE COLLINS,
Supervisor, The Collins Transportation Co., Inc., Taunton, Mass

Inaccessible Solenoid \$10

THE GRIPE DEPARTMENT,

DEAR SIRs:

You certainly started something. I have been in the automotive busi-

E Department

For Mechanics, Foremen, Superintendents, Supervisors—in fact all connected with the maintenance and operation of fleets, who want designers to give more thought to making post-war trucks easier to maintain and repair and less costly to run

IT PAYS TO GRIPE **\$ 10**
COMMERCIAL CAR JOURNAL WILL PAY FOR EVERY GRIPE PUBLISHED . . .

. . . AND each month one of the Gripes will receive an extra award of a

\$ 25 WAR BOND

. . . READ Fleetman Dudley's letter in the June issue, page 40, and the letters on this page and you'll get a clear idea of what it's about.

"The Gripe Department," started at the suggestion of a fleetman, invites fleet mechanics and all others connected with fleet maintenance and fleet operation to send in their gripes. It will pay to gripe. For every griping letter published in this department, COMMERCIAL CAR JOURNAL will pay \$10. In addition, the best letter each month will receive a \$25 War Bond. The choice of letters for publication and for the War Bond will be made by the Editors of COMMERCIAL CAR JOURNAL.

Their disposition of letters will be final. Choice will be determined by the content of the letters and not by style of writing or appearance.

Here is a chance for every fleetman to tell the designers of post-war trucks what is wrong with trucks as they have been built and how post-war trucks should be designed to cut down maintenance time and maintenance costs.

Here is every fleetman's chance to get his ideas over to all of the big shots in the truck industry: presidents, sales

managers, engineers and servicemen.

Here is an opportunity for fleetmen to influence post-war truck design along lines that will make their jobs easier and more pleasant.

Fleet mechanics, fleet shop foremen, fleet superintendents and fleet supervisors—in fact all men connected with the maintenance of truck fleets—are invited to send in their gripes.

Address your letter to THE GRIPE DEPARTMENT, COMMERCIAL CAR JOURNAL, PHILA. 39, PA.

ness 19 years and next to being a wizard on "keeping 'em rolling," a mechanic is the world's champion when it comes to "gripes." To prove my contention here is our favorite:

A well-known make of house-to-house retail delivery truck has a starter motor with integral mounted solenoid switch. It takes from three-quarters to 1 hr. to remove and dismantle, install new switch,

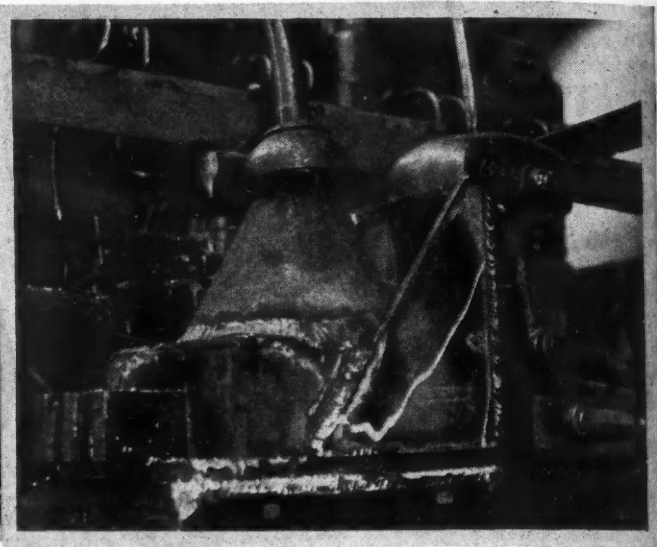


reassemble and replace on truck. This pet peeve became so troublesome that I redesigned the system by substituting a copper stud for the

switch and mounting a different, less expensive solenoid switch on the dash. Now we change a defective unit in five minutes.

Wishing you success to a great idea which I am sure will be avidly read by fleetmen, for "misery loves company," I am

JOHN M. KAVANAGH, Fleet Supt., Hegeman Farms Corp., Ridgewood, N. Y.



Left. Cab framework of Lyon Van Lines' c.o.e. Above. Closeup of specially designed transmission, showing sliding rods and welded joints

Fleet Builds Trucks From Salvaged

Home-made c.o.e.s. have 1500 lb. less g.v.w., carry 500 lb. more freight to gross \$3150 more annually. Unique design and construction uses rebuilt parts and scrap material

by **CHESTER A. NELSON**

President, Lyon Van Lines, Inc., Los Angeles, Cal.

"We have improved our methods and construction as we have gone along, until now a top notch cab-over-engine truck costs us about the same as a custom job if we could get it at pre-war prices; which we can't, at any price.

"In addition, we save approximately a minimum of 1500 lb. in gross truck weight over the custom-built job.

"Keeping a careful check of revenue returns, we have found

that 500 lb. extra freight carried . . . for the 21 average trips per unit . . . means an extra \$1050 in freight revenue annually. And, multiplying this figure by three . . . for the 1500 lb. extra carrying capacity . . . the increased earning power of the unit is the tidy sum of \$3150 annually.

"In terms of truck cost, this extra earning capacity for five such trucks for one year more than pays the construction cost of two complete trucks."

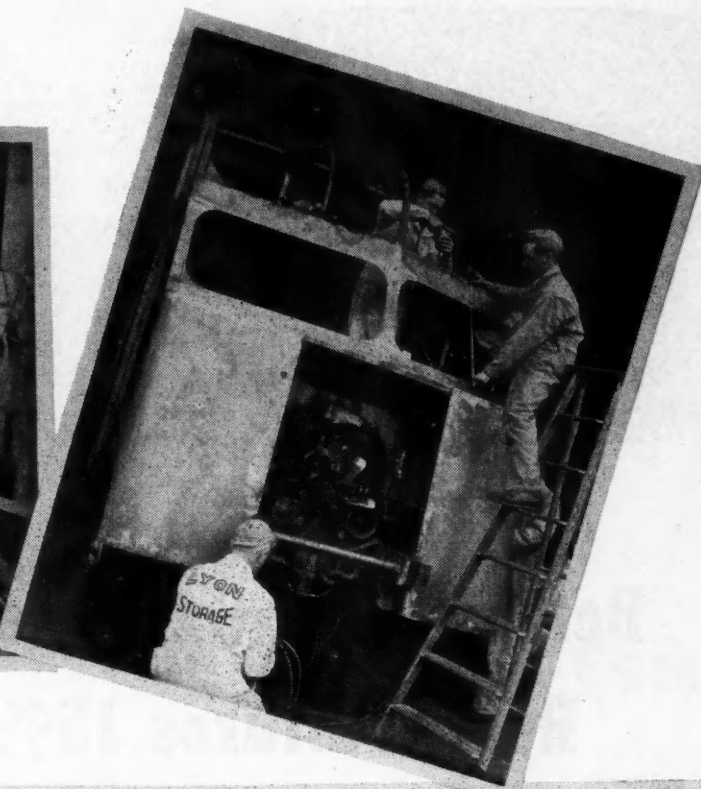
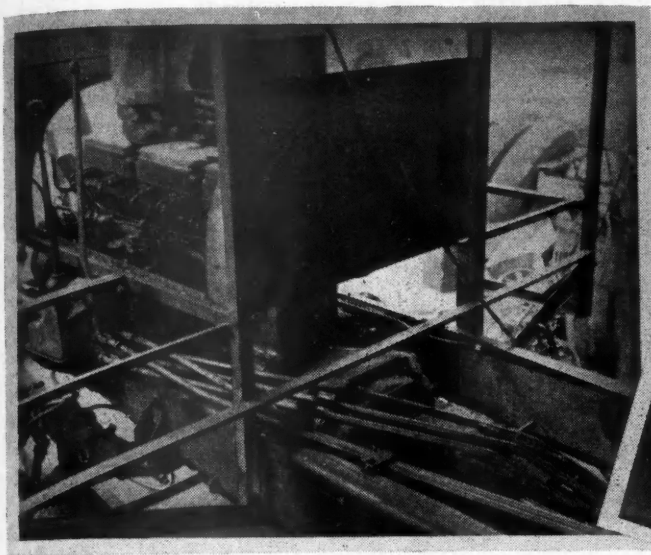


Chester A. Nelson

BUILDING trucks and tractors at Lyon Van Lines South Grand Avenue terminal, Los Angeles, Calif., is a fixed part of our preventive

maintenance program. It was begun before ODT and WPB began thinking up ways to void the lessons learned by operators the hard way—practical experience, the kind that doesn't come in a book.

We say part of our maintenance program because the best place to start anything is at the beginning. With us the beginning is from the ground up—the design and the construction of the unit that is to be maintained. By designing for extra



Above. Forward and midshift transmission controls of own design. Upper right. One of units nearing completion. Right. Finished job

Parts

strength where it is needed, at the same time reducing weight where possible, and by the proper selection of materials without impairing the vehicle's span of life, the upkeep cost of such unit is consistently held at a low and economical level, or so we have found in our case. In fact, according to our records it has lengthened the unit's life by decreasing weight on tires and power demand.

Specializing in the hauling of household goods and licensed as a common carrier, the standard truck type body has never been satisfactory for our particular purpose. This is because our cargoes are of more bulk than weight. And to get carrying capacity each hundred pounds saved in construction weight means increased revenue earning ability per unit.



Therefore, we went into the manufacturing end of the truck business after experimenting with the purchase of tailor-made trucks. It was one of those trial things, at first. Then came the Japs to mess things up. Result: No more trucks of the type we needed could be purchased; meaning, we were in the truck manufacturing end to stay.

We have improved our methods and construction as we have gone along, until now a top-notch cab-

over-engine truck costs us about the same as a custom job if we could get it at pre-war prices; which we can't, at any price.

In addition, we save approximately a minimum of 1500 pounds in gross or truck weight over the custom-built job. To get what that means, let's take a concrete case for the year just passed. One of these units on the Los Angeles-Seattle run made 21 round trips for the year—51,000 (TURN TO PAGE 82, PLEASE)



Better Parts Cut Fleet's Road Failures 15%

**Even with doubled staff, war parts caused
25% breakdowns. Better parts, ODT aid and
driver cooperation keep 90% of fleet going**

by E. WILLIAMS

Manager, O I M Transit Corp., Fort Wayne, Ind.



E. Williams

AS A motor truck common carrier of general commodities, we operate 100 units. War material or equipment used in the war effort constitutes 90 per cent of the freight carried by our fleet. We have terminals at Fort Wayne, Hammond and Angola, Ind.; Chicago, Ill.; Lima, Ohio; Grand Rapids, Kalamazoo, Lansing and Jackson, Mich. The territory served is between these stations in the industrial Middle-West.

Inferior quality of wartime parts proved to be the most costly factor

throughout 1943 and in the history of our maintenance program. Labor costs, alone, more than doubled over the previous year. Even with 10 mechanics and helpers we could not keep ahead, whereas five men normally do the job well when genuine pre-war quality parts are available for prompt delivery.

These conditions gradually worsened. They became acute in the last quarter of 1943, when an average of 25 per cent of our trucks were down for major repairs. This high cost of maintenance did not include the loss of revenue due to these idle trucks, nor take into consideration the loss to war industries in delayed shipments of needed war materials—all

"Inferior quality of wartime parts proved to be the most costly factor throughout 1943 and in the history of our maintenance program.

"Labor costs, alone, more than doubled over the previous year.

"Even with 10 mechanics and helpers we could not keep ahead, whereas five men normally do the job well when genuine pre-war quality parts are available for prompt delivery.

"In the last quarter of 1943, an average of 25 per cent of our trucks were down for major repairs.

"However, we are encouraged by some slight improvements since the first of the year. Close working with the local ODT officials has helped considerably.

"By March 1, we had reduced the number of idle units from 25 per cent, average, to 10 per cent. This was due to some improvement in the quality of parts coming through, partly to more prompt deliveries and partly to some changes in our maintenance program."

caused by inferior parts, shortage of parts and mechanics.

To illustrate, during the last six months of 1943 it was necessary to install new valves in some engines about every 5000 miles. That was a fair average for the two-piece wartime welded valves. Sometimes an engine would blow one of these valves on the first trip out. Wartime bearings, main and connecting rod, were no better than the valves. Bearing failures became chronic and caused no end of crankshaft trouble with consequent extra expense.

In several instances, during 1943, crankshafts were damaged beyond repair, but almost without exception they would have to be sent out to be reground before we could use them again. The extent of this crankshaft damage from bearing failures depends on conditions, but the worst and most frequent injury was cutting a ring around the bearing surface by a piece of babbitt metal as the shaft turns in the injured bearing. To get rid of the ring we had to grind up to .060 and search for bearings to fit.

(TURN TO PAGE 90, PLEASE)

Editor's Note—This is the third of a three-part symposium on the post-war truck sponsored by the Metropolitan Section of the Society of Automotive Engineers. The first part appeared in the May issue under the title "Design Details for Post-War Trucks" and was by Fred B. Lautzenhiser. The second was published in the June issue under the title "What Mechanics Want in Post-War Trucks" and was by C. F. Hawes.

Mr. Horine, one of the best informed men in the truck industry, has undertaken the task of predicting what the truck of the future will be like. He has been exhaustive in his treatment of the subject and because of its length his paper will be presented in two instalments. In this portion he deals with Arrangement, Styling, Frames, Suspension, Powerplants, Cooling, Clutch, Transmission and Drives. Next month's instalment will deal with Steering, Brakes, Cab and Controls, Tires and Accessories.



Merrill C. Horine

IN SOME ways my part of this triple symposium on the post-war truck is the hardest part. Mr. Lautzenhiser had merely to state what is needed.

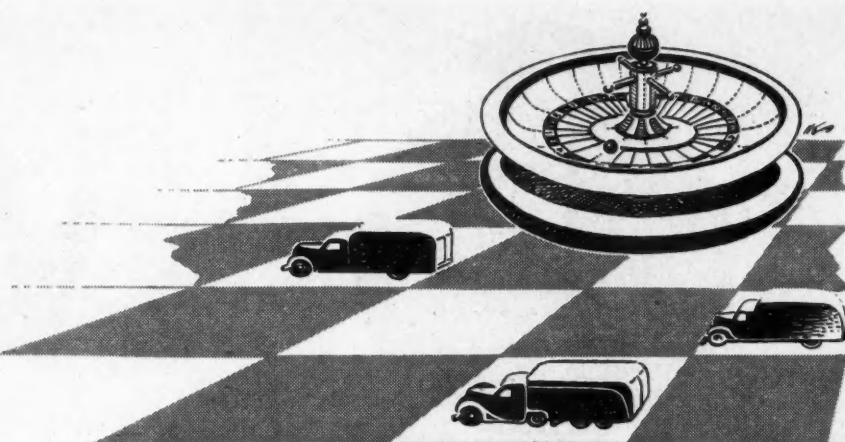
Mr. Hawkes had merely to constructively criticize what has already been produced. Neither had to venture any prediction as to what the industry will actually do. My assignment, on the other hand, is to predict what the industry is likely to offer in fulfillment of these demands. Furthermore, there will be little room for argument about the things which are desirable in the way of performance and capacity or accessibility, durability and convenience for maintenance of post-war trucks, but it is hardly likely that anyone will agree with my prognostications of future developments.

Before starting on the subject I wish to state that even though I may be disagreed with in everything I say, I still insist upon my own right to say it. So far as I am concerned, my opinions are my own and any resemblance found between my descriptions and actual trucks, past or future, is purely coincidental.

Arrangement

Of course the trucks that emerge from the factories after the war will have long, narrow engines standing upright between the narrow frame rails at the front, just like a horse between the shafts of a wagon. That's where the idea originated, of course, and it's been mighty convenient for the manufacturer, too.

The engine has to be narrow be-



Calling the Turn on Trucks to Come

A well-informed member of the truck industry braves disagreement by venturing to predict future developments in design

by MERRILL C. HORINE

cause the front wheels have got to have room to turn. That space isn't any good for load and besides the driver has to see over it—if he can. It makes the controls mighty convenient and leaves a nice, long drive-line with plenty of room for the regular clutch and transmission.

Then, if the designer forgot to put enough gears in the job, there's plenty of room for an auxiliary transmission or a transfer case.

The trouble is, of course, that this horse-and-buggy arrangement takes up a lot of wheelbase—particularly if the cab is placed buggy fashion, behind the engine. On most trucks about half the wheelbase is taken up with the engine and cab.

Long ago this drawback was realized and we had the cab moved up over the engine. That put more weight up front, gave the driver a better view of where he was going and saved wheelbase.

The trouble with the high-cab construction is that it makes it difficult for the driver to get in and out—almost impossible for him to use the right side door—and generally sacrifices a lot of accessibility, complicates the controls and doesn't always provide room enough for the escape of air from the fan.

No use talking about a transverse engine across the rear, as in buses. We've still got to load and unload
(TURN TO PAGE 138, PLEASE)

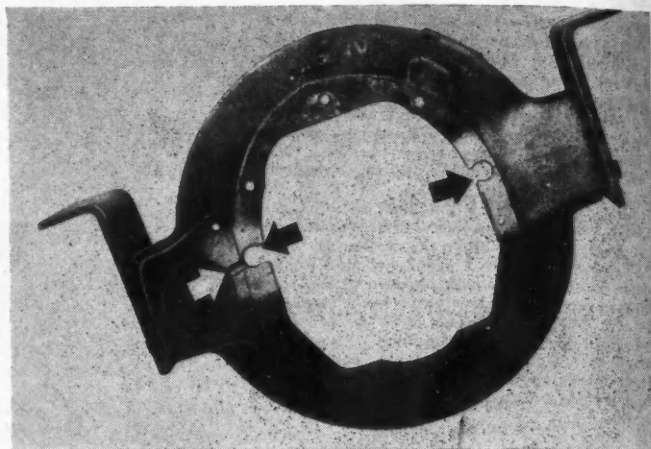
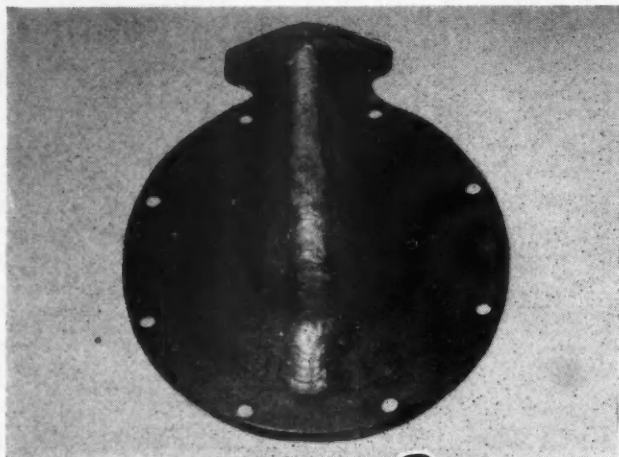
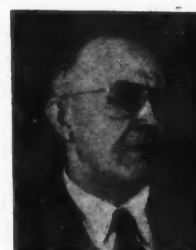


Fig. 1, upper left, a water pump housing, and Fig. 2, the sprocket at left, had unusual breaks, in that the cracks did not extend through the castings' extremities. Fig. 3, above, shows breaks the repair of which is explained in the text and next page



Controlling



Alex. F. Morton

THE use of bronze as the welding material on cast iron has almost eliminated the cast iron rod entirely, except on such jobs that are to be pre-

heated and welded with the same material that the part undergoing repairs is composed of.

An attempt at welding the tractor water circulating pump housing shown in Fig. 1 without preheating when using a cast iron rod may or may not be successful. Preheating, however, should be done in a case such as this inasmuch as the crack does not extend through either of the extremities of the housing.

After the job has been preheated and welded with cast iron rod, it may or may not require machine work, and it may or may not be free from some new crack, which turned up

This is the second article by Alex. F. Morton on low temperature bronze welding of cast iron. The first, in the June issue of **COMMERCIAL CAR JOURNAL**, explained the basic principles which were demonstrated by three simple experiments and examples of actual repairs.

This article points out how to take advantage of certain physical characteristics of bronze and how, by taking advantage of them, low temperature bronze welded repairs can be permanently successful. Also, how by following the methods and cautions outlined, new cracks due to contracting strains can be avoided.

Actual jobs discussed in this article include: Water pump housing, sprocket, bell housing, bottom tank of radiator, etc.

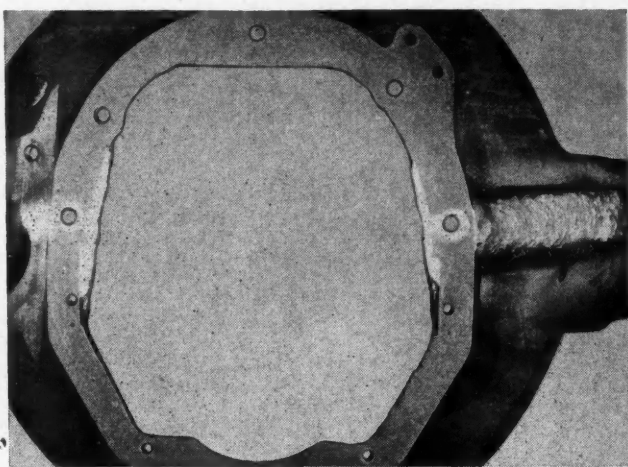
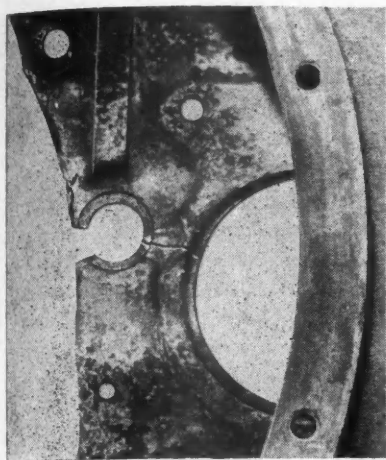
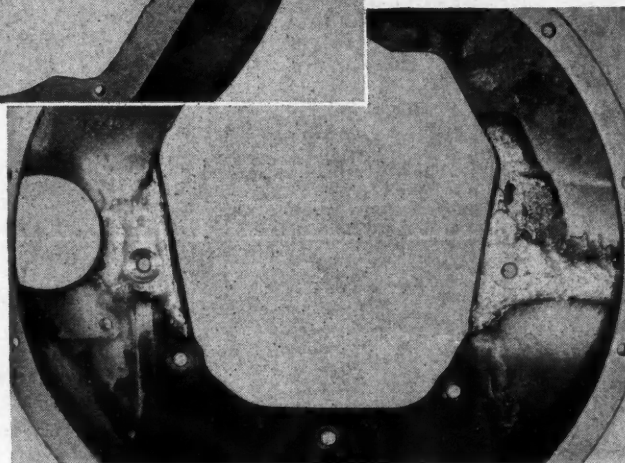


Fig. 4, above, shows the crack in the narrow bridge of metal between the starter unit opening and the larger inside opening of the bell housing illustrated at Fig. 3. The cracked area was melted away about one-third before welding. Fig. 5, upper right, shows housing after repair. A small amount of reinforcement was made at the outer edges of the bolt holes. Illustration at right shows reverse side of the job



Strains in *B*ronze Welding

The strength and contracting action of bronze can be used to good advantage to pull cracks close. Flow of metal should be held to a minimum to reduce strains

by **ALEX. F. MORTON**

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either during the time it was in the fire or during the cooling-off period. Unrelieved strains in the part from the time it originally left the foundry, or a strain set up by the expanding ice during the freeze up, may only need this additional preheating for such strain to relieve itself and crack open.

Using the surface-heat, low-temperature method on this pump housing, with bronze as the binding material, eliminates all these above mentioned "doubtfuls."

The only preparation this part received was steel grit blasting both the inside and the outside of the length of the crack. On the inside, a

round-bottomed groove was chipped on the surface which is close to the impeller. This was filled surface high and either filed or ground down to its original surface. The balance of the inside crack was given a thin layer of bronze—not over 1/16 in. high, the outside less than an 1/8 in. high 5/16 in. wide. Both welds made a water-tight job without either peening or "doping."

The job itself is of little importance, but it demonstrates the accuracy of the assertion that heat kept at the minimum on this thin-walled casting will not crack the casting anew.

Here, again, we have spread the pull of the contracting bronze so that its action pulled the unchipped cracked walls of the break together. The fact that the bronze will absorb this strain and remain put, even though under stress was demonstrated in our previous article, which (TURN TO NEXT PAGE, PLEASE)



The upper illustration shows the bottom tank of a heavy duty, tractor radiator about to be repaired by low temperature bronze welding. The ragged edges of the hole were chipped and squared with an air hammer. The illustration below shows patch tack-welded in place. The bottom view shows the finished repair

Controlling Strains in Bronze Welding

(CONTINUED FROM PAGE 55)
appeared in the June issue of **COMMERCIAL CAR JOURNAL**.

Had we chipped out a 90 deg. "V," the strain would have been transferred to the surrounding cast iron walls. The bronze, being three times as strong as the cast iron, would have given us a new crack somewhere along the line of weld; for the reason that bronze used to fill a chipped out section of cast iron with bronze has twice the contraction in volume or .012 per foot per hundred degrees drop from the molten condition to the normal or cold condition, whereas cast iron removed from the "V" requires only enough space for a .006 per foot per hun-

dred degrees drop from molten to the solid state, and does not have the ductility or elasticity of bronze and will not stand the strain set up within itself unless relieved by the preheating of the entire part.

Repair welding over a period of many years has been largely a matter of guesswork; based on the belief that any one can weld. Results have not always been what was expected. Preparation of parts has been based on methods that, many times, apply to other methods of welding parts than should be used when making repairs with bronze on cast iron.

While many readers may minimize the difference in the preparation of parts for electric welding, or for gas

welding with a cast iron rod on cast iron, the tremendous strength of bronze on cast iron, with additional double contraction strain must, at all times, be given the consideration of applying the bronze so that the hazard of the strength and contraction strain can be controlled. The methods outlined herein have been put to the practical test through many years, with results that have had few failures and a generally satisfactory life in service after having been repaired.

Repair welding, regardless of the process used, has always been an expensive procedure, unavoidable at times, and used with reluctance when new parts could not be obtained quickly, and the question of the welded piece giving worthwhile service disposed of with the use of a new part.

Without trying to ignore the fact that the pump housing possibly could have been repaired in place on the truck, by bronze or arc welding, the fact remains that if such inexpensive repair does not stand up, then the cost of its replacement, dismantling, etc., adds to the maintenance cost.

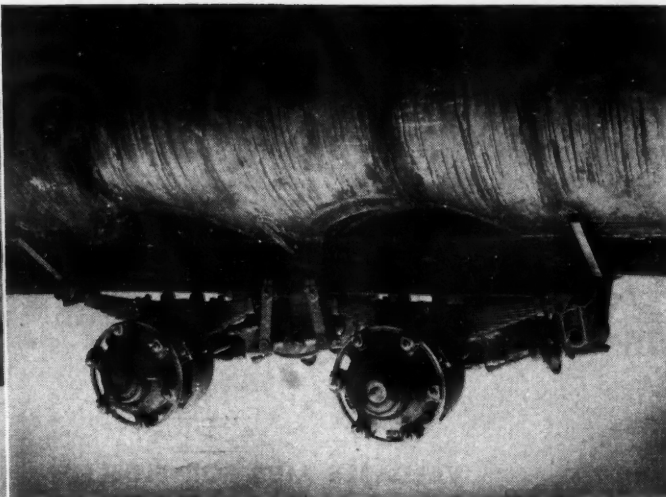
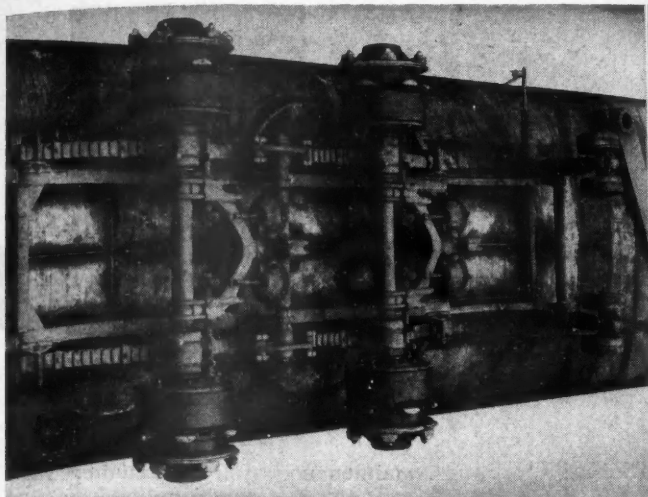
Sprocket Repair

Another peculiar break is shown in Fig. 2. The crack occurred in the web of this sprocket, without going through the rim at either end. In preparation, we chipped a half-inch round-bottomed groove, about 3/16 in. deep on each side, leaving plenty of the wall unchipped between the groove on each side for weld resistance and to balance the pull of one strain against the one on the opposite side. Using a No. 5 welding tip, 3/16 in. bronze rod, and confining the heat to the weld area only, the job was completed without going through the rim at either end.

A pair of non-fluctuating oxygen-and-acetylene regulators are necessary, plus the packing nuts being pulled up snug on the torch valves to keep the flame slightly oxidizing, if blow holes are to be avoided.

Bell Housing Repair

The bell housing shown in Fig. 3 takes plenty of punishment. Worn rubber shock absorbing cushions, which go under each arm, are not so quickly obtained these war days, (TURN TO PAGE 100, PLEASE)



Left. Construction details of the frameless semi-trailer, revealing details of the tandem-axle mounting. The rubber spring assembly, explained in detail in the article, is shown in the illustration at right. A complete unit is shown below

The efficiency of this new tandem-axle, frameless tank-trailer chassis is highlighted by a minimum number of wearing parts, a smaller number of lubrication points, an unusual spring suspension whereby the springs are load-carrying members only and take no braking strains, and a new dual-wheel design.

The only wearing parts are five bushings on each side in the rocker assembly. They are accessible, close together and located between the two wheels.



J. F. Winchester

CONSIDERED the forerunner of a decided advance in commercial vehicle design that sharply reduces maintenance costs, seven 5500-gal.

tank semi-trailers are today rolling along Arkansas highways after having successfully passed "laboratory tests" which proved that radical changes in chassis and body construction, developed by Esso Marketers in collaboration with three automotive firms, would largely eliminate tank leakage, frame and axle breakage, excess tire wear, and also lower fuel consumption.

Frameless Tank Design Effects Important Savings

Unusual construction increases pay load, saving time, labor and mileage. Tank leakage, frame and axle breakage also are eliminated



by J. F. WINCHESTER

Manager Automotive Dept., Standard Oil of New Jersey

Trial runs of the new vehicle for close comparison with "old style" 4000-4200-gal. single axle semi-trailers revealed that the larger units can transport equivalent quantities with a 25 per cent reduction of man and

truck hours, a saving of 35 per cent in truck miles, a 25 per cent reduction in tire wear, and a lower fuel cost of 25 per cent.

The design of the new vehicle
(TURN TO PAGE 224, PLEASE)

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VALUABLE AIDS FOR FLEETMEN

A selected list of the latest literature — books, pamphlets and catalogs — intended to help fleet operators solve maintenance and operating problems. They are more valuable today than ever before. All are free. To get your copies simply fill in the numbers on the postcard and mail. No stamp is needed.

L185. Tire Care Booklet

Perhaps one of the most unusual pieces of useful literature published on tire care is this 16-page, 5½ x 7½ in., three-color, self-cover booklet, whose theme is "A Little Care Makes Tires Go a Long Way."

Presentation of the facts is in a humorous vein, abundantly illustrated with photographs, charts and gremlins which help the facts to stick in the reader's mind.

Data cover causes of lost mileage, causes and effects of high internal heat and tips on tire care, including synthetics.

Because of the light treatment, a booklet of this type is ideal for passing out to driver and mechanic personnel. It is suggested that a number of copies be obtained with this in mind. Write L185 and quantity desired on the free postcard.

L186. Female Labor Bulletin

Fleet operators who are contemplating employing women, as well as those who have women in their employ, will be interested in a new government release dealing with female labor hired to replace men entering military service.

The data cover the most suitable jobs, working conditions productive of best results, instruction methods, supervision, personal comfort facilities, physical requirements, clothing, etc.

While not prepared exclusively for fleet service, this 16-page 6 x 9 in. bulletin comprises information gathered by the U. S. Department of Labor and should prove to be a good guide for fleetmen. Write L186 on the free postcard for a copy.

L187. Welding Troubles Chart

One of the principal manufacturers of welding equipment has prepared an excellent wall chart illustrating 14 common causes and cures of welding troubles.

Each cause of poor or imperfect work is illustrated and accompanied by a clear, simple and brief explanation as to the cause and cure. Properly located in the shop, this should prove a great aid in eliminating difficulties and improve future welding jobs. The data is not confined to inexperienced help. There is much useful information for experienced welders.

The chart measures 18 x 24 in. and and substantially reproduces the data contained in a recent book on this subject. Write L187 on the free postcard for your copy.

L188. Fire Extinguisher Booklet

One of the most useless pieces of equipment is a fire extinguisher that doesn't work. In an emergency this can be tragic.

Here is a 12-page booklet that outlines a sound basic fire extinguisher

maintenance system, including suggestions for proper placement, efficient supervision, record-keeping and recharging of all types of extinguishers. The importance of actual demonstrations in fire-fighting technique also is stressed.

This 12-page, 8½ x 11 in. booklet is written in simple language and profusely illustrated with drawings, photographs and charts. Moreover, to insure intelligent handling, purchase and installation, the classification of the various types of fires is defined, and code marks of the Underwriters' Laboratories, which appear on the labels of all accepted extinguisher models, is explained.

A free copy of this booklet will be mailed to any fleet operator who writes L188 on the postage-free postcard between these pages.

L189. Gear Lubrication Data

One of the leading oil refiners, who has been publishing much good data on automotive lubrication principles, methods and problems, has recently published an excellent symposium on gear lubrication.

The subject is presented in a very thorough way, starting with a discussion of the various types of gears encountered in automotive vehicles, including transmission, differential, overdrive, etc. The discussion follows through to a logical conclusion as to the proper lubrication for these various gear assemblies, including the maintenance angle.

The data have been written in such clear language that even the least experienced shop man can comprehend its meaning. Therefore, this is good material for mechanic training purposes. Copies can be obtained by writing L189 on the accompanying postage-free postcard.

(TURN TO PAGE 227, PLEASE)

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NEW PRODUCTS

P234. Midget Sander

"Mity-Midget" is the name of a new, lightweight, high-speed block sander manufactured by National Air Sander, Inc., Rockford, Ill. It is 4¼ in. high and 5½ in. long, and weighs 3½ lb. This light weight permits overhead sanding without fatigue, and the size makes it adaptable for close quarters and fillet work.



An exclusive "no vibration" is claimed for this sander which, because of its air operation, can be used for wet and dry sanding.

Use Free Postcard for More Details

P235. Robot Oil Reclaimer

The Youngstown Miller Co., Sandusky, Ohio, announce its Robot oil reclaimer employing the process that this company has used in batch oil reclaimers for over ten years with the new feature that operation is now automatic and continuous. Capacities range from 4 gallons per hour to 500.

These units are capable of restoring all kinds of oils so that the reclaimed oil can be re-used in the same manner and place as the new oil.

JULY, 1944

FOR FLEET OPERATORS

The latest in shop equipment, supplies, replacement parts and accessories developed by manufacturers for fleet operators. For more details of any product described, fill in the number on the postcard and mail. No stamp needed. Also use the postcard for additional information on any product advertised in this issue.

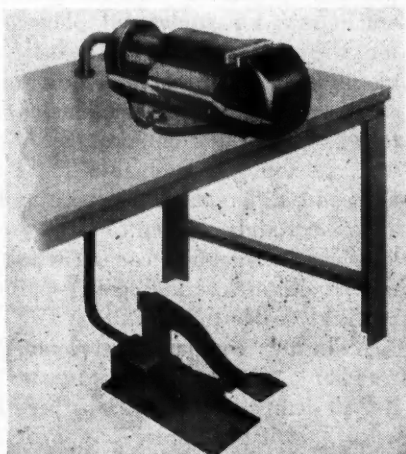
Operators of diesel engines will find that a single robot can take care of all their diesel engines. They have the added assurance that the Robot can remove fuel dilution and moisture and keep their engines clean.

Use Free Postcard for More Details

P236. V-Way Hydraulic Vise

Ruggedness, "V" ways, semi-steel construction and simplified, all-steel hydraulic foot control, are salient features of the new hydraulic vises manufactured by Reimuller Bros. Co., Franklin Park, Ill.

Only two levers are used in the hydraulic foot-controls, one to apply



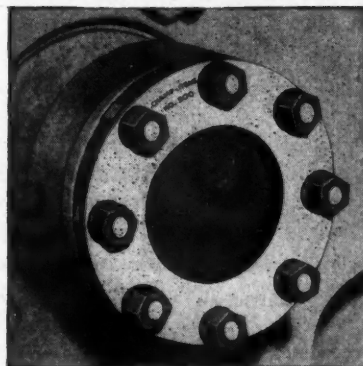
pressure up to rated tonnage; the other for release which has a two-speed return. No outside airline or

power is needed. The unit is self air eliminating. Operator's hands are free for work. Two sizes are available: 4-ton with 4-in. opening, and 7-ton with 7-in. opening.

Use Free Postcard for More Details

P237. Stud Locking Rings

A new product known as the "No. 500" line of rear axle stud locking rings has been announced by Champ-Items, Inc., St. Louis. The rings are



made of steel and prevent serious trucking delays and eliminate costly repair jobs. A complete kit contains all necessary parts for one truck. Three sizes fit the following: No. 500—Chevrolet 1½-ton 1936-39; No. 501—Ford 1½-ton 1939-42; and No. 502 International trucks. Installation instructions, fully illustrated, with each kit.

Use Free Postcard for More Details
(TURN TO PAGE 210, PLEASE)

Business Prospects in The Post-War Period

Motor carriers will have plenty to shoot at when the big shootin' stops and now is the time for them to plan to get their share of the business

by JOHN C. McWILLIAMS

Director, Research Department, American Trucking Associations, Inc.



John C. McWilliams

EVERYONE is vitally interested in general economic conditions after the war. Those of us who are directly connected with the trucking industry are even more interested in the post-war economic conditions within the industry.

Of course, the two are closely related. Conditions within the industry will be governed to a great extent by conditions generally. On the other hand, the degree of planning and aggressive action by the men who run the trucking business will be a tremendous factor in determining the status of the industry in the postwar era.

Today, the men who run the truck-

ing business—we might say the “brains” of the industry—are concentrating chiefly upon immediate wartime problems. There is not much time for study and planning for the postwar era. We believe motor carriers must find time for study and planning immediately or face the prospect of entering the postwar era totally unprepared for the new and different problems it will almost certainly present.

When the truckman considers postwar possibilities certain questions immediately come to mind.

Will my company get enough freight?

Will competitive conditions permit us to haul it profitably?

These two questions involve virtually every phase of truck operation, including such things as cost and rates.

HERE ARE THE MAJOR ITEMS
THESE FAMILIES INTEND TO BUY
JUST AS SOON AS THEY ARE AVAILABLE
















	3,675,000 families would buy new <u>AUTOMOBILES</u>
	2,625,000 families would buy <u>REFRIGERATORS</u>
	2,535,000 families would buy <u>RADIOS</u>
	2,100,000 families would buy <u>WASHING MACHINES</u>
	1,645,000 families would buy <u>STOVES</u>
	1,505,000 families would buy <u>ELECTRIC IRONS</u>
	1,400,000 families would buy <u>VACUUM CLEANERS</u>
	1,085,000 families would buy <u>ELECTRIC KITCHEN MIXERS</u>
	840,000 families would buy <u>SEWING MACHINES</u>
	1,540,000 families would buy <u>NEW HOMES</u>
	1,365,000 families would buy <u>LIVING ROOM FURNITURE</u>
	665,000 families would buy <u>DINING ROOM FURNITURE</u>
	1,365,000 families would buy <u>BEDROOM FURNITURE</u>
	1,575,000 families would buy <u>RUGS AND CARPETS</u>
	1,470,000 families would buy <u>LINOLEUM</u>

Chart 1. An indication where truckmen may look for post-war business

Today, the kinds of traffic hauled and the sources of that traffic are dictated largely by the requirements of a total war. After the war, the kinds and sources of traffic unquestionably will change in many important respects.

Thirty-five million families are deciding now what will be hauled after the war. . . .

They are deciding what they want to buy with their forced savings. . . .

Their wants govern production. . . . Production governs freight traffic. In other words, the things they want are the things the manufacturers and producers are going to provide, and these are the things that will be available for transportation.

Obviously, what these families

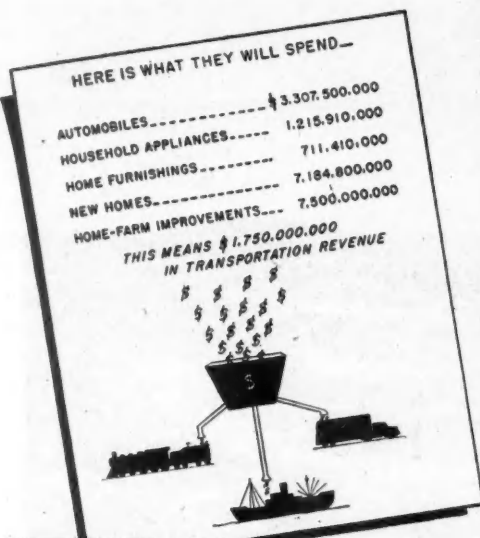


Chart 3, left, an interpretation of estimated post-war truck transportation demands in dollars and cents. Chart 4, above, other good prospects

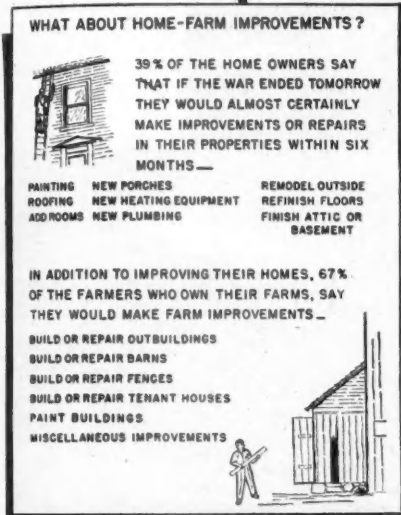


Chart 2. An idea as to the materials which will move in large loads

stoves bought as normal equipment in new homes and apartments. Nor do they include exports.

Actually, the demand for these items, particularly homes and home furnishings, is expected to be much greater than these figures indicate. We should bear in mind that there have been thousands of war marriages, and there will be hundreds of thousands of postwar marriages. The requirements of these new families are not included in the figures on the chart.

In addition to these major new items, there will be a heavy demand for repair and improvement of homes and farms. This means that the necessary materials will have to be transported. Chart 2 gives an idea of the materials which will move in large quantities. Thirty-nine per cent of the home owners in America say that if the war ended tomorrow, they would almost certainly make some sort of improvements or repairs in their properties within six months. How about the farmers? In addition to improving their homes, 67 per cent of farmers who own their own farms, say they would make farm improvements.

Up to now, I have attempted to give you an idea of the type and quantity of freight that will have to be moved in great quantities.

In Chart 3 we have made an effort to interpret this demand into terms

of dollars and cents. It gives the amounts that will be spent to meet the consumer demand outlined in the previous charts.

On the basis of past records, these anticipated expenditures for the items named will mean transportation revenues aggregating \$1,750,000,000.

Now \$1,750,000,000 might not seem too impressive when you compare it with some of the figures you see in the newspapers these days. But it's still a lot of money.

For example, in 1939 these same commodities yield transportation revenues of something less than \$600,000,000, or only about 34 per cent as much as they are calculated to yield after the war.

As a matter of fact, \$1,750,000,000 amounts to about 36 per cent of total transportation revenues from all types of traffic in 1939 (\$4,850,000,000).

Now, the big question is: How much of this \$1,750,000,000 is going to the trucking industry?

The answer will depend to a great extent upon the go-getters in the industry whose job it is to obtain the freight for trucks to haul.

In this connection, there are certain other possibilities which deserve attention. In Chart 4 we have listed a few prospective sources of increased traffic. While it is impossible to predict how extensively these

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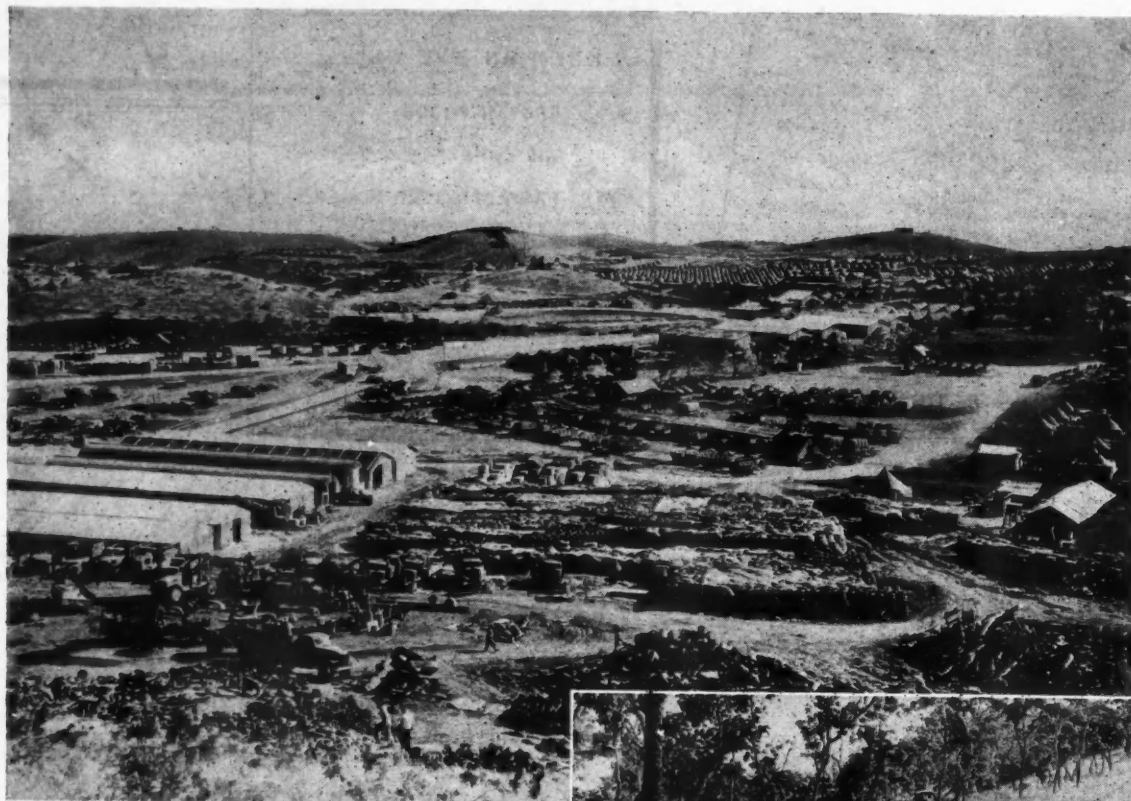
want is of vital importance to you.

If the war ended tomorrow, what would they buy?

To get the answer to this important question, the United States Chamber of Commerce made a national survey to measure postwar buying intent for the period immediately following the war's end. The results of the survey have extreme significance for those engaged in freight transportation.

Chart 1 gives the major items American consumers intend to buy just as soon as they are available.

I might observe that these figures do not include any of these products that will be bought for commercial use. They do not include such products as mechanical refrigerators and



General view of motor base APO 502. Salvage yard is shown in foreground

by GENE HARDY

Commercial Car Journal, Washington Bureau



Usable parts dump at an ordnance salvage depot near Port Moresby

RPAIR, rebuilding and salvage operations in the automotive field by Army Ordnance are saving the American taxpayer millions of dollars annually, and, by the use of repaired and rebuilt vehicles, Army demand for new vehicles is lessened considerably.

The work is carried on both overseas and in various Army establishments in the United States. Many vehicles are repaired and rebuilt overseas, but no accurate information as to the number of such vehicles is available, since field commanders must of necessity get on with the war. Scrap and salvage material also is collected overseas and returned to this country in ever increasing quantities.

Material collected from the battlefields includes every conceivable type of equipment used by the services, in

addition to motor vehicles. As ships are available the salvage and scrap material is returned to this country. It is received in the United States at one of seven salvage segregation centers established, since the fall of 1943, for the purpose of segregating and handling overseas salvage.

These salvage centers are located

at Boston, Brooklyn, Frederick, Md., New Orleans, Seattle, San Francisco and Los Angeles.

At these centers the salvage is screened and reclaimable material is separated from scrap. Cutting down the amount of reclaimable material is the fact that a great deal of it is kept overseas and used there.

Salvage Heaps

Ordnance is rebuilding about 70,000 vehicles a year,



"Repair, rebuilding and salvage operations in the automotive field by Army Ordnance are saving the American taxpayer millions of dollars annually and, by the use of repaired and rebuilt vehicles, Army demand for new vehicles is lessened considerably.

"The work is carried on both overseas and in various Army establishments in the United States.

"Salvage centers are located at Boston, Brooklyn, Frederick, Md., New Orleans, Seattle, San Francisco and Los Angeles.

"Usable parts are sorted out by officers and sent to checking points throughout the ordnance establishment for eventual reissue to the various echelons of maintenance and depots. In one month, one of the segregation centers shipped 13 loads (1½-ton vans) of general purpose

(not combat) vehicle parts.

"To aid officers in the segregation of all parts, lists of critical and excess items are issued. Critical items are used until they are no longer of any use.

"Army Ordnance is repairing and rebuilding about 70,000 automotive vehicles a year by a new line production method. Only one per cent of these are automobiles. The remainder are trucks and heavier vehicles."



Illustration at left shows Army trucks being salvaged in New Guinea. Right, Army mechanics install engine in a GMC 6x6

Help Army Truck Repairs

using salvaged parts and assemblies from battle-scarred automotive casualties

For example, several ordnancemen in England put together an improvised forge which they cut from a salvaged truck cab. In another part of England, soldiers built a washing machine from various automotive scrap parts of jeeps and heavy duty trucks. Some ingenious ordnancemen use 400 B.t.u. manufactured

gas to run rebuilt engines during their breaking in period in the shop, thus saving valuable petrol. Army officers say this ingenuity on the part of the American GI's is due to the proper background of military and technical training received by ordnancemen.

In the case of salvage returned to

the United States, the first step in segregation after the reclaimable material is sorted from scrap is for the various services of the Army to claim materials used by their branch. Ordnance is responsible for all automotive equipment; in addition to Army vehicles, this branch of the

(TURN TO PAGE 150, PLEASE)



R. W. Smith

WE BEGAN to recap our tread-worn tires in 1937. The purpose was to save money. Under our pre-war methods, we re-

duced our tire maintenance costs appreciably on the entire fleet as outlined below.

First, we obtained a minimum of about 50,000 miles and a maximum of about 60,000 miles on original treads of our pre-war tires, covering all sizes used, namely, 7.00x20 and 7.50x20 fronts, and 8.25 to 9.20 on rears and semi-trailers. We carried standard loads, as recommended for the various sizes by the tire manufacturers.

Within the first two years we were able to increase the number of tread-worn casings that could be recapped by 25 per cent. Of all casings recapped once, three out of six can be recapped three times, and the fourth recap is now becoming more common.

This increase resulted from checking tires for proper air pressure, never permitting a load to leave before inflating all tires and making frequent inspections to locate any possible tread or carcass injury that might cause a road failure. Moreover, we made it a practice to keep tires properly matched, and always to mount two new tires or new recaps side by side on all dual units. We also kept brakes properly adjusted, tires balanced and wheels in proper alignment to avoid cupping or other excessive, spotty or uneven wear.

If, as it happens more often nowadays with wartime rubber, one of two paired tires wears faster, we transfer it quickly to avoid putting extra strain on the other running mate, and thus avoid another premature failure.

In point of money savings, the 7.50x20 recap runs about \$12, compared with the \$40 new tire. On the 8.25x20 the recap is \$17.25, compared to \$85 list for a new wartime tire. The saving mounts appreciably with multiple caps. To illustrate, based on our pre-war averages, the original tread at \$85 gave us 60,000 miles. Each recap, based on our

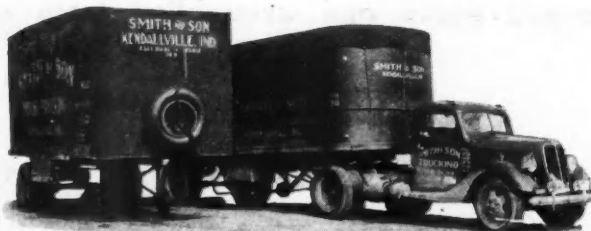
(TURN TO PAGE 124, PLEASE)



Fig. 1, Left. Examples of two recaps that failed prematurely. The tire on the left failed because of an air pocket between the camelback and the carcass. Tire next to it blew out after 100 miles service on a trailer. Dual set at right shows stage when tires are removed for recapping

Recaps Pay Cash and Mileage Bonus

**New tires cost \$85 and run 60,000 miles.
Three recaps per tire cost \$51.75 and net
90,000. Pre-war tire program responsible**

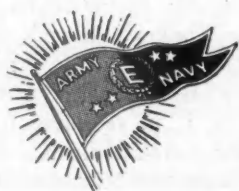
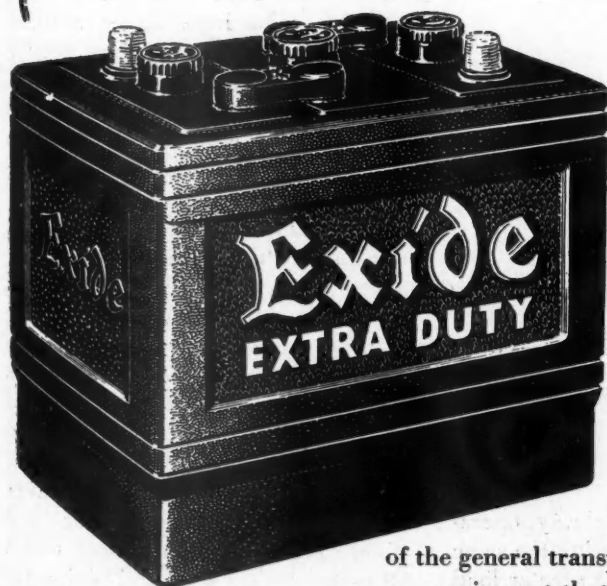
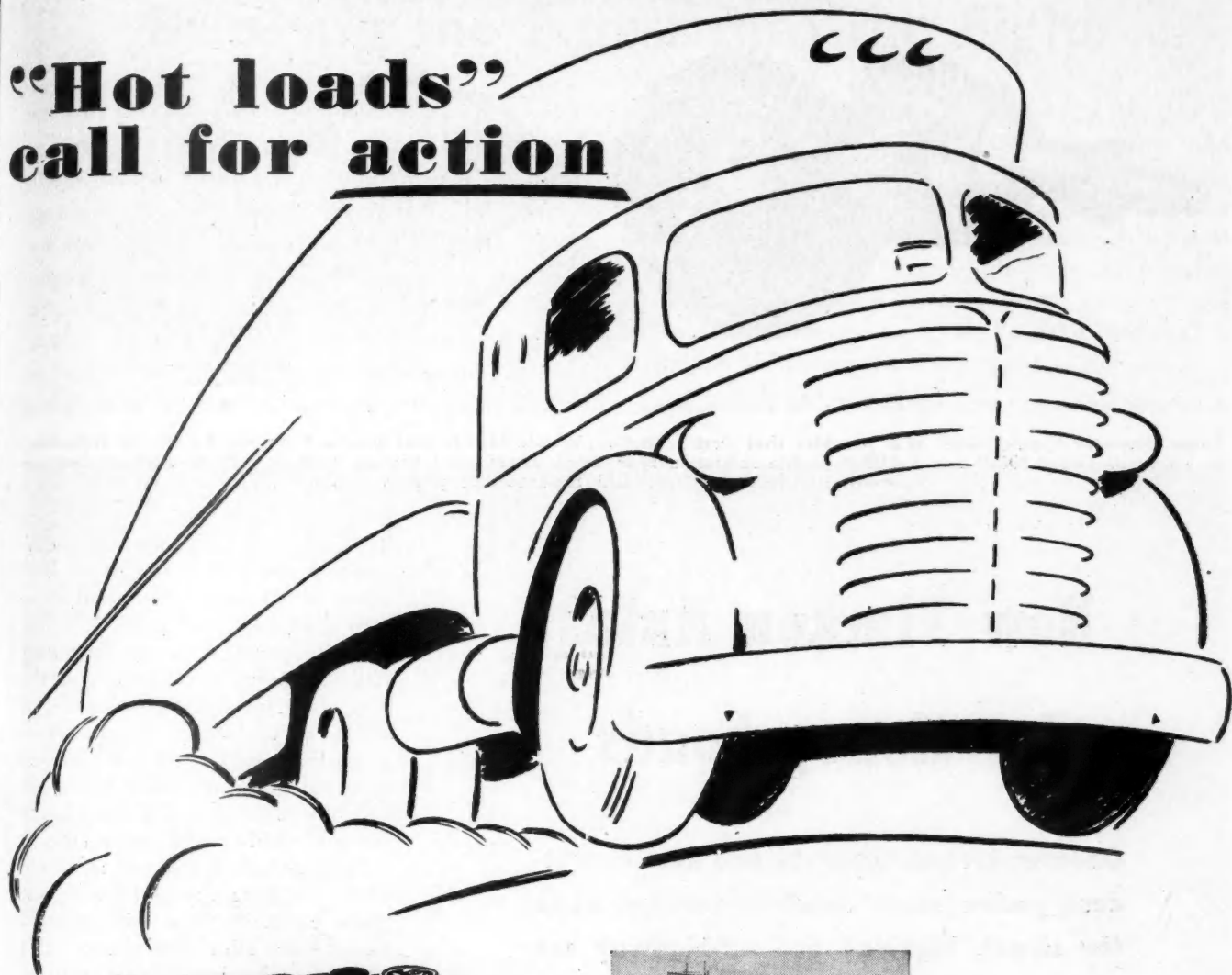


by R. W. SMITH

Smith & Son, Kendallville, Ind.

★ TRUCKS CARRY A WAR LOAD ★

"Hot loads" call for action

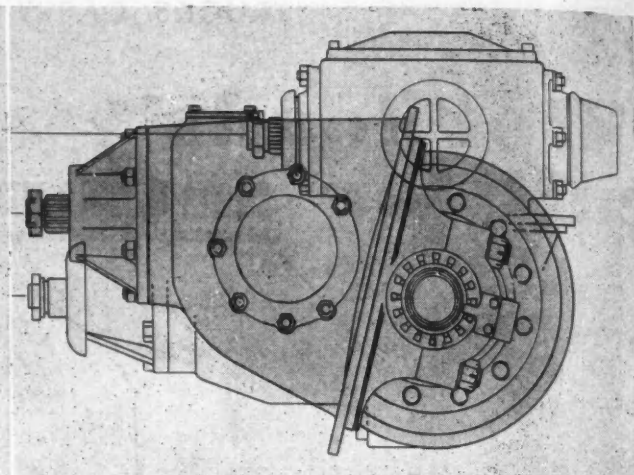
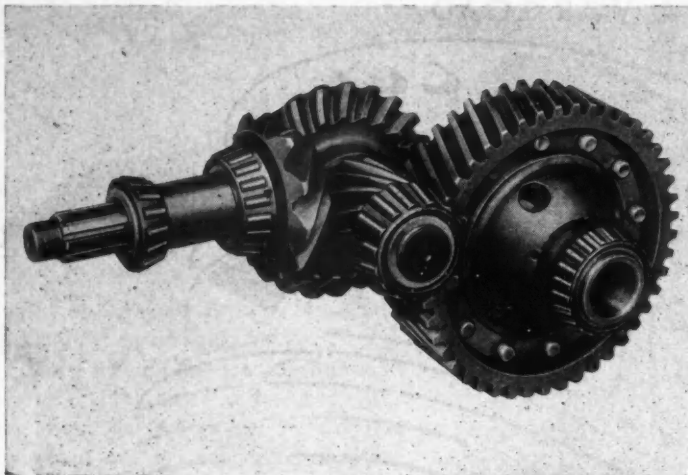


A destroyer

lay waiting in Norfolk for some special parts manufactured in New England. A special truck rushed the parts down. When it arrived, the vessel, with its boom out, picked up the parts and was steaming out to join a convoy before the driver had even picked up his papers at the dock office.

Modern warfare requires action on both the fighting and civilian front. Trucks, as an integral part of the general transportation pattern, require the best equipment available . . . equipment that will give utmost service and stand up under the strain of constant and rough use. That's why so many are equipped with Exide Batteries. Exides are built for long-life, dependability, and simplicity of maintenance. When you buy an Exide, you *Buy to Last*. Take care of it and *Save to Win*.

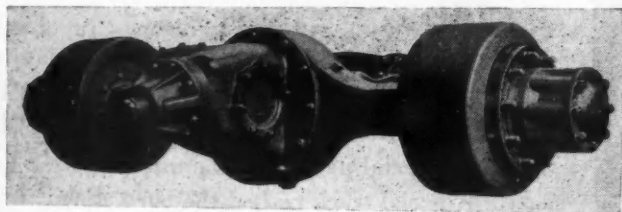
THE ELECTRIC STORAGE BATTERY COMPANY, Philadelphia 32
Exide Batteries of Canada, Limited, Toronto



Large diameter hypoid bevel gear provides that first reduction, a wide face helical gear and pinion the second reduction, in Timken's new S-200-P and U-200-P double reduction rear axles. Interjacent pinion shaft is located midway between conventional front-mounted and top-mounted pinion shafts

New Timken Axles for Heavy Loads

Greater torque capacity and new interjacent pinion shaft location feature axles for street, highway and off-highway use



New Timken S-200-P and U-200-P double reduction axles are similar in design, with larger housing section and larger inserted sleeves in U-200-P for greater load

DESIGNED for heavy loads and the increased torque capacity of modern high power engines are two new series of double reduction rear axles announced by The Timken-Detroit Axle Co. Series S-200-P is intended for heavy-duty hauling on highways and city streets where permissible loads are over 18,000 pounds per axle at the tires on the ground. Series U-200-P is

designed for off-the-highway operations of motor trucks, using the same engine torque but where greater load carrying capacity is desired over the S-200-P.

Featured in these new heavy duty axles is a new interjacent pinion shaft location, midway between the conventional front-mounted type, where the pinion shaft is on the axle center line, and the top-mounted

type, where the pinion shaft is considerably above the axle center line. This interjacent pinion shaft location permits a nearly straight line propeller shaft drive on both long and short wheelbase trucks. Thus the new axles can be used in place of either of the other types, a standardization feature which reduces axle and parts inventories at the factory and in the field, and this benefits the truck builder and owner alike.

Axle housings in both axles are similar in design, made from highest grade malleable iron with inserted heat treated alloy steel sleeves. The U-200-P axles have larger housing sections and sleeves for their greater load-carrying capacity.

Maximum ground clearance and full overhead clearance at the axle housing bowl are realized with these new axles.

Drive units or differential carriers, together with axle shafts, are identical in both axles. The differential carrier is mounted on the sloping front face of the axle housing and is readily removable for inspection. Differential bearing legs are dowelled in the axle housing to eliminate deflection under heavy torque load.

Final drive consists of a large diameter hypoid bevel gear and pinion for the first reduction, and a wide-face helical gear and pinion for the second reduction. Both gear sets are rigidly mounted on large capacity Timken tapered roller bearings. A range of five gear ratios, with total reductions from 6.42 to 9.83 to 1, is available to meet all operating requirements.

(TURN TO PAGE 69, PLEASE)

Bringing the Forest into the Fight

NATURE'S OWN PLASTIC . . . timber . . . is one of our most critical wartime materials—because it is one of our most versatile. There is no shortage of standing timber . . . thanks to conservation policies, begun years ago, by logging companies working with the U.S. Forestry Service. Manpower, however, *is* a problem . . . and that's where modern trucks come in. Today, Super Power Whites go directly into mountain stands of timber and deliver huge loads of logs direct to the mill—at a saving in manpower and as much as two days in time.

The versatility of truck transportation . . . like that of lumber . . . is what makes it so important now. And conservation is *its* lifeline, too. With trucks working harder and longer than by peacetime standards was ever thought possible, the last mile of each must be postponed as far into the future as *good care* can postpone it. To assist owners in this, White has developed *Personalized Service* to replace "wishful thinking" in the job of keeping America's trucks at work.

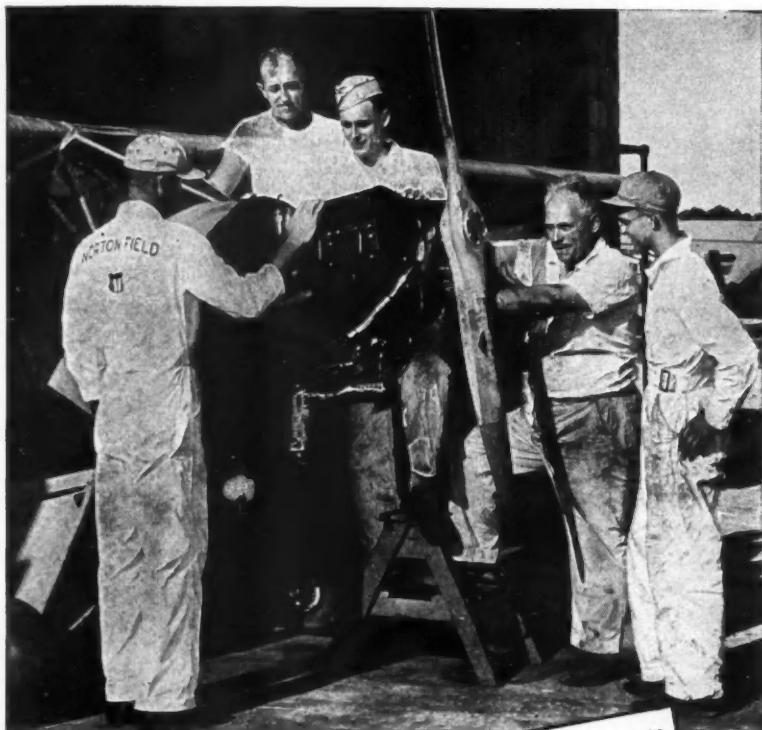
THE WHITE MOTOR COMPANY • Cleveland, Ohio, U.S.A.



White

FOR MORE THAN 40 YEARS THE GREATEST NAME IN TRUCKS

BUY MORE WAR BONDS



NORTHWAY MECHANICS

Student Instruction
Charter Flights
Distributor for Northwest

Serviced by
at Aviation Corporation
and Repair Station 4380

NORTHWAY FLYING SERVICE

HERBERT STUMP, Owner

NORTON FIELD
Columbus, Ohio

EV. 4921

December 4, 1943



Auto Northway Club



Big Northway Planes

Mr. John L. Schatzmann
District Manager
Valvoline Oil Company
Cincinnati 23, Ohio

Dear Mr. Schatzmann:

About fourteen months ago we were having considerable grief from sticky valves, etc., with our flying equipment. We did not think the trouble was the fault of the oils because we were using oil furnished by one of the large companies whose quality is accepted.

We purchased your product and, after a fair test, our entire operation was put on Valvoline HFO oil. We have not had one sticky valve for the past year. At this time we are tearing down each motor for regular five hundred hour inspection. So far we have not had to replace any major new parts, only those parts necessary from regular wear.

Norton Field holds a record we believe is a national one. We have flown our fleet a total of five thousand hours since April 1st with only one forced landing and one accident. These two incidents were no fault of lubrication.

All of us are very enthusiastic boosters for Valvoline.

MIDWEST AVIATION CORP.

Herbert Stump, Pres.



HERBERT STUMP
Northway President

Fleets of Planes OR Fleets of Trucks

... it's all the same to

VALVOLINE

Norton Field airmen are enthusiastic about Valvoline protection

Men like Herbert Stump, President and General Manager of Norton Field, Columbus, Ohio, can't afford to take chances with motor oils. Training pilots for America's air forces, Norton Field's civilian instructors and mechanics know that their motors *must not fail*—and they have seen Valvoline protection prove itself.

The same protection means trouble-free extra mileage to operators of trucks, buses, or heavy duty construction equipment. Valvoline lubricants and Valvoline Fleet Laboratory Service can save you money . . . Write today to your nearest Valvoline office.



NORTHWAY CIVILIAN INSTRUCTORS

VALVOLINE OIL COMPANY

500 EAST FIFTH STREET CINCINNATI 2, OHIO

New York - Chicago - Atlanta - Los Angeles - Vancouver

REFINERY IN PENNSYLVANIA

COSTS MORE TO MAKE — COSTS LESS TO USE

VALVOLINE

The 1st Pennsylvania Oil

NEW TIMKEN AXLES

(CONTINUED FROM PAGE 66)

Increased strength of differential gear teeth is provided by a new differential gear set with a 9-16 tooth combination. Differential side gears and pinions have hardened steel thrust washers of ample area for minimum wear. Spider trunnions have larger diameter, and the differential gears are mounted in forged steel cases.

Improved "Torsion-Flow" axle shafts are claimed to be the strongest axle shafts for a given spline diameter ever produced in the industry. Inner ends of these shafts have 16 slant-sided splines so proportioned that the largest relative body diameter is possible. Splines are stronger, and are enclosed by the mating splines in the differential side gear hub. This results in a maximum length of shaft between splines and outer flange to absorb torsional wind-up.

Brakes are the Timken "P" Power Series, especially designed for power operation. Drums are 16½ inches in diameter, allowing ample space for ventilation (with 20 inch base tires) to assure cool running and long life in severe service. Shoes are 7 inches wide, reducing friction wear and "fading." Lower pressure per square inch of braking surface increases liner life.

Introduction of a new "transfer-bar" hook-up to the slack adjuster levers permits mounting the two brake chambers high on the rear of the housing, where they are not subject to damage in case the truck is backed into a pile of gravel or dirt. On the road the brake chambers are well protected by the axle housing bowl.

Track on both axles is 72 in., with 11.00 x 20 tires on dual disk wheels with 12¾ in. spacing. Timken hubs for disk wheels are mounted on large capacity wheel bearings spaced to obtain correct load distribution between inner and outer bearings.

Certain makes of trucks now in production for civilian use are equipped with the Timken S-200-P and U-200-P axles.

Hall Joins Atlas Supply

John J. Hall, nationally prominent figure in the field of street and highway safety and director of the Special

Services Division of the National Conservation Bureau, accident prevention department of the Association of Casualty and Surety Executives, has resigned to assume an executive position in the post-war marketing and merchandising program of the Atlas Supply Co.

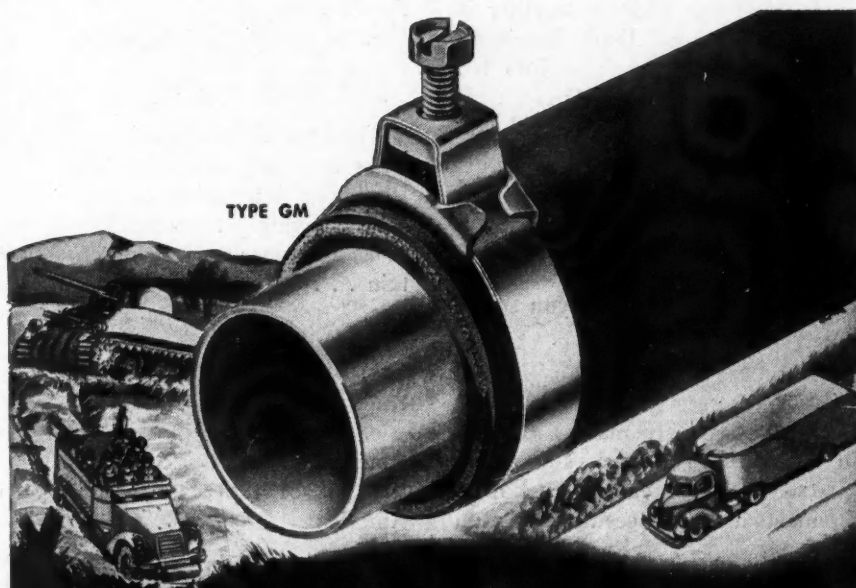
Hancock on ACWP Board

William G. Hancock, general sales manager of McCord Radiator & Mfg. Co., has been elected to the board

of directors of the Automotive Council for War Production. He succeeds the late H. W. Knapp, of McQuay-Norris Mfg. Co.

Rowland Celebrates

William & Harvey Rowland, Inc., of Frankford, Philadelphia, Pa., is celebrating its one hundredth anniversary as the oldest leaf spring manufacturer in the United States. It is also celebrating the one hundred and fiftieth anniversary of its founding.



DEPEND ON WITTEK

NOC-OUT

HOSE CLAMPS



Type A—Adjustable
For Replacement.

The standard of the industry. Quick-tightening, perfect leak-proof hose connections, for original equipment and replacement. For Radiator, Heater, Booster Brakes and High Pressure hose connections. Wittek Manufacturing Co., 4305-15 W. 24th Place, Chicago, Ill.



Type HP—For High
Pressure Require-
ments.

WITTEK



NOC-OUT
HOSE CLAMPS

CCJ QUIZ

by **ROBERT F. BAHL** Correct Answers on Page 88

Any truck operator transporting goods from one state to another is bound to run into "Trade Barriers." Right now you're running into ten questions about Trade Barriers. If you have them all right, you'll still just be getting a small idea of the hundreds of state laws that restrict and hamper the movement of commodities between individual states. Take 10 credits for each correct answer and see how well you score. Answers are on page 88.

1

If you wanted to make a tour of all 48 states in a truck you would have to be careful that the truck measurements did not exceed a maximum of . . .

- a. 84 in. wide by 11 ft. high by 26½ ft. long
- b. 96 in. wide by 12 ft. high by 30 ft. long
- c. 96 in. wide by 12½ ft. high by 33 ft. long
- d. 106 in. wide by 14½ ft. high by 55 ft. long

2

In May, 1942, one of these called a conference of all state governors to obtain cooperation on two points: First, the adoption of a new minimum size and weight code, and, second, the honoring of license plates of all other states. The person calling the conference was . . .

- a. President Franklin D. Roosevelt
- b. the late Joseph B. Eastman
- c. General George C. Marshall
- d. Secretary Harold Ickes

3

For a state to permit its own operators one weight limitation and restrict out-of-state operators to a lower weight limitation would be . . .

- a. unconstitutional

- b. forbidden by agreement among the 48 governors
- c. an actual fact in one state

4

Trucks use the highways, and highways wear out and need repair. It would be interesting to know that special highway taxes paid by trucks alone each year are sufficient to maintain . . .

- a. 1/8 of all the state highways in America
- b. 1/4 of all the state highways in America
- c. 1/2 of all the state highways in America
- d. all of the state highways in America

5

The greatest single factor in the deterioration of roads is . . .

- a. the number of vehicles of all types traveling over the roads
- b. the gross weight of the vehicles
- c. the axle load on vehicles
- d. the weather

6

Can you tell us which of these puts a premium of "pig-iron engineering" in the design of trucks?

- a. Determining the permissible gross vehicle weight on the basis of net chassis weight
- b. Basing permissible weight on load carrying ability of tires
- c. Applying a flat limitation on gross weight without regard to the number of axles on the truck
- d. Limiting axle load rather than gross weight of vehicle

7

One of the few fortunate, though unintentional, results of over-restrictive truck legislation has been the development of the cab-over-engine

truck. In addition to reducing the over-all length of the vehicle, the cab-over-engine design also . . .

- a. provides more nearly equal load distribution on the axles
- b. is easier to steer than conventional designs
- c. is considered only "half-a-vehicle" in some states

8

The multitude of restrictions on motor transportation have come from many sources, but mainly they have been instigated by . . .

- a. the New Deal
- b. the Interstate Commerce Commission
- c. petty jealousies among the states
- d. competitive transportation systems

9

Who pays the extra amount when trade barriers among the various states increase the cost of transporting commodities by motor vehicle?

- a. The manufacturer of the goods
- b. The transportation company
- c. The retailer, wholesaler, or consignee who receives the goods
- d. The public

10

We end up with a little series of "true or false" items. Check whether each statement is true or false, and count a credit of two points for each correct choice.

- a. A truck meeting all I.C.C. specifications is permitted to operate in any state. True? False?
- b. Truck license plates of any state are honored in all other states. True? False?
- c. There have been no instances where state restrictions are interfering with the movement of war materials. True? False?
- d. Taxes and fees levied on truck operators are used only for road building and maintenance. True? False?
- e. Existing legal limitations have the effect of standardizing truck design. True? False?

Globe Gets Award

The Des Moines operation of the Globe Hoist Co. was awarded the Army Ordnance Award for meritorious production at appropriate ceremonies on June 5.



T. G. O'BRIEN, Fleet Superintendent

"WE REPLACE DAMAGED SECTIONS

Fast ON OUR TRAILER BODIES...

LESS THAN TWO MAN-HOURS PER PANEL," SAYS *J. G. O'Brien*

Fleet Superintendent for Hagstrom Food Stores

Hagstrom's
FOOD STORES INC.

BROOKLYN 41 22th
OAKLAND, CALIFORNIA
May 23, 1944

Lindsay & Lindsay
Adams, Franklin Bldg.
Chicago 6, Illinois

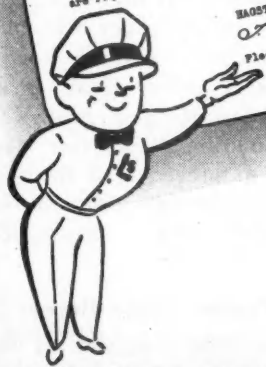
Gentlemen:

Three years ago we tried our first Lindsay Structure trailer body -- a 20 foot unit, capacity 20,000 pounds -- built for us by Standard Trailer Co. in San Leandro, California.

On the record of this first Ls body we have ordered additional Ls bodies from Standard Trailer Co. four times. These bodies have given excellent service, which in our case, means an average daily run of 300 miles with approximately 30 stops.

To us one of the most important advantages of Ls bodies is that we can replace damaged sections *fast* -- less than two man hours per panel are required.

Very truly yours,
HAGSTROM'S FOOD STORES INC.
T. G. O'Brien
Fleet Superintendent



Extra pay-service hours made possible by Lindsay Structure trailer bodies mean extra advantage in coming post-war competition. In developing your post-war plans, consider Ls. Its high strength-weight ratio results in greater pay loads, reduced operating costs. Body designs are modern, streamlined, and distinctive. Local warehouses, located at key points throughout the country, make fast delivery of bodies or replacements possible.

With Lindsay Structure, you can rehabilitate your trailer fleet in these three ways:

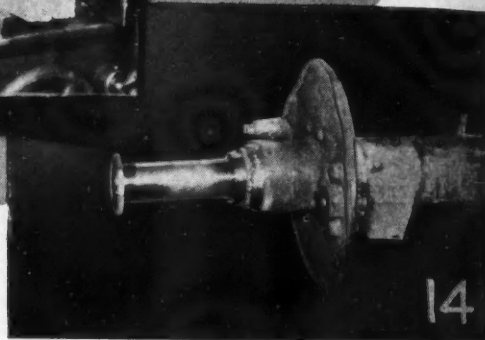
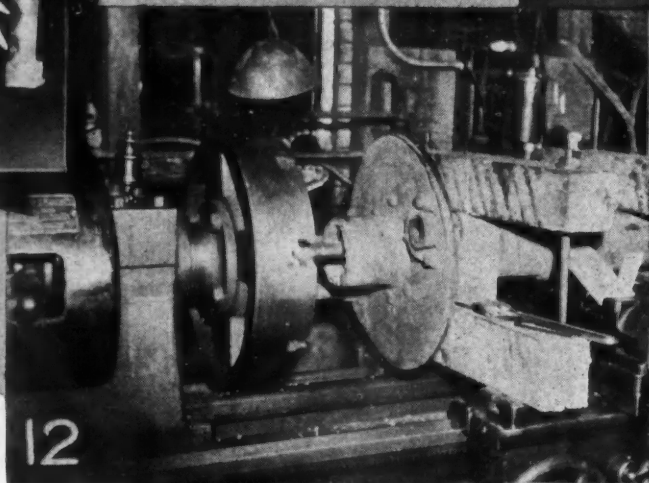
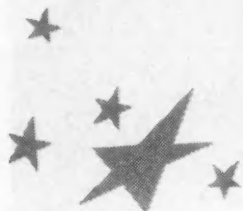
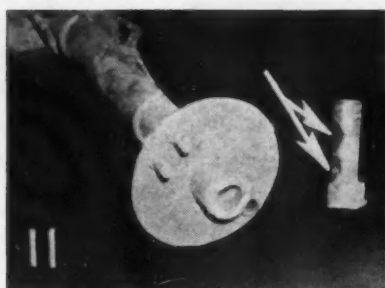
1. Mount new Ls bodies on your old chassis.
2. Build new Ls bodies on new standard chassis.
3. Add to your fleet with new light-weight Ls trailers.

Consult the Lindsay Structure Fleet Engineering Service for the solution to your fleet problems. Send drawings and data to Lindsay and Lindsay, Adams-Franklin Building, Chicago 6, Illinois; or 60 East 42nd Street, New York 17, New York.

LINDSAY
Ls **STRUCTURE**

U. S. Patents 2017629, 2263510, 2263511
U.S. and Foreign Patents and Patents Pending

DISTRIBUTORS AND DEALERS THROUGHOUT THE COUNTRY



Parts Salvage Fools Fleet Paralysis

(CONTINUED FROM PAGE 47)

2. Starter Brush Holders

In the early part of the war, when material containing copper and brass was critical and almost impossible to get, we had quite a time getting starter brush holders, since they contained brass parts. The insulating ring would break, and if we could get a new ring we could put the old brass parts on the new ring. But this was impossible to do as the brush holders were not sold in separate units.

The insulating material was made from bone, and we were able to get some of this in sheet form. We then roughed the rings out on a band saw, chucked them up in the lathe, and made the ring. Using an old ring as a pattern, we drilled the holes and mounted the brass parts onto the ring, which gave us a complete brush holder, as good as new. The brush holder and the ring are shown in Fig. 2.

3. Wheel Repair

The wheels on all of our equipment are spoke-type. At various times, wheels have broken due to accidents or tires being mounted loosely. In Fig. 3 we show a broken

wheel which, if we have all the parts, we repair by welding.

We use an acetylene torch and rough cut the outside circumference of the wheel, chuck it up in the lathe, machine it and then fit it into a ring which we have made up by a Minneapolis boiler manufacturing company. This ring is made of one-half in. material, seven in. wide. We then weld the wheel to this ring and to the outside edge of the ring, we weld another ring of $\frac{1}{2}$ by $\frac{3}{4}$ -in. material, as shown in Fig. 4.

We chuck the wheel in the lathe again, machining the outside edge and cutting the taper on the $\frac{1}{2}$ by $\frac{3}{4}$ -in. ring. Then we burn the part where the valves come through.

Finally, we redrill and tap holes for the studs that hold the ring on the wheel.

The finished job is shown in Fig. 5.

We repair these wheels at a cost of \$25, including labor. The rebuilt wheel is a little heavier than the original but more substantial than a new one.

6. Home-Made Muffler

It is nearly impossible to obtain a satisfactory muffler of the size and type for our operation, because too

light a material is used, the muffler contains too many baffles and a back pressure is put on our motors.

Fig. 6 shows a muffler we have developed of 16-gage material, which is rolled for us by the same boiler company in Minneapolis. We weld the ends and then cut slots at different angles, one on one side and one on the other, as shown by the arrows in the illustration. Next, we insert a piece of steel in each slot, so that they act as baffles, and then weld them onto the muffler. We have had some of these mufflers in use for four years.

7. Brake Assembly Holder

We have put larger transmissions in some of our trucks, but have been unable to get emergency brake mechanism assembly holders from the factory. In Fig. 7 we show one made from a piece of $\frac{3}{8}$ -in. steel, with a piece of one in. square (see arrow) welded and braced to it to support the brake assembly. Fig. 8 shows the assembly mounted on the transmission.

9. Engine Block Repair

We have had a number of blocks broken by a connecting rod, as arrow (TURN TO PAGE 74, PLEASE)



©1944 MACK MFG. CORP.

THE SCOOP THAT HAS LASTED 44 YEARS!...

The first Mack, built in 1900, started something *more* than just a successful American business. That first Mack wasn't built to match another truck—but to be the *best* truck in the world, bar none. Every Mack since has been built with the same aim. The result is a *working* reputation known around the world. The phrase "Built like a Mack truck" wasn't put into the language by us. It *grew* there out of what Macks *do* on the job. Yes, 44 years of front-running performance back your judgment when you pick a Mack!



Mack Trucks, Inc., Empire State Building, New York, N. Y. Factories at Allentown, Pa.; Plainfield, N. J.; New Brunswick, N. J. Factory branches and dealers in all principal cities for service and parts.



Mack

**TRUCKS
FOR EVERY PURPOSE**
ONE TON TO FORTY-FIVE TONS

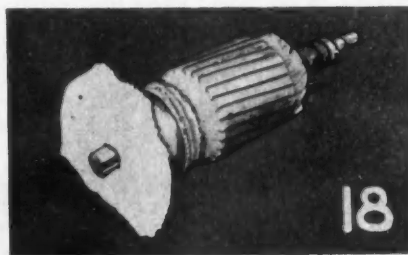
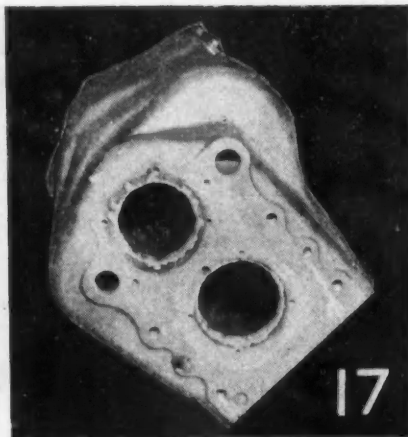
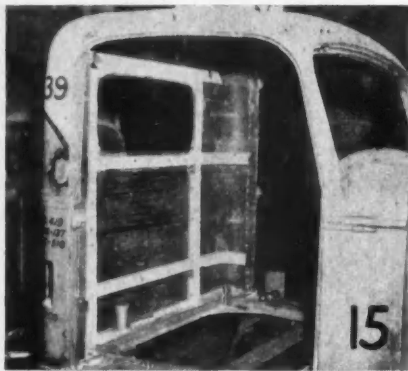
BUY U. S. WAR BONDS

IF YOU'VE GOT A MACK, YOU'RE LUCKY...IF YOU PLAN TO GET ONE, YOU'RE WISE!

JULY, 1944

Use postage-paid card inserted in this issue for free information on advertised products

73



Parts Salvage Foils Fleet Paralysis

(CONTINUED FROM PAGE 72)
in Fig. 9 shows. We have never been successful in using blocks that were preheated and welded, due to the fact that the blocks warp out of shape. We repaired this type of break ourselves by using a low heat type of welding rod, cutting a piece out of an old block to fit this break and welding it in this block. In doing this, we also use a torch on the entire block, enough to take the chill out. Fig. 10 shows the completed job on a block, and arrow points to the finished repair.

11. Axle Repair

We have repaired trailer axles which have been cut up and damaged by broken bearings, by cutting the old axle spindle off, as shown in Fig. 11. Notice the gouges, shown by arrows, made in the axle spindle by the bearing when it broke.

We then mount the axle on the carriage of the lathe, bolting it down. This allows us to move the axle back and forth with the carriage. Fig. 12 shows the boring bar in the headstock of the lathe, boring out the end of the axle. We then chuck up a piece of steel in the lathe, machining it, threading it and leaving a stub to fit

into the bored out axle, as is shown in Fig. 13.

The stub shaft is made about .013 larger than what the axle was bored. We then heat the axle, insert the spindle, and electric weld it as seen in Fig. 14. We have been extremely successful in the operation of axles repaired in this way.

It takes about two days to repair an axle this way and costs \$32. A new axle would cost \$70 and would take from six months to a year to obtain. Before we repaired our axles this way, we used to send them into the factory, but they were never returned to us in less than three months and sometimes as long as six months.

15. Cab Repair

The cabs on our trucks are of the pressed steel type. Due to vibration and age, it is almost impossible to repair them without putting wood framework in. Fig. 15 shows a cab which was repaired this way.

We have been repairing our cabs in this manner for more than a year. We have also inserted wooden pieces in the doors of these cabs. This is done by taking the sheet metal off the door, inserting the wood framework,

putting the metal back on and re-crimping.

16. Wheel Rebuilding

We have, at times in the last two years, bought equipment secondhand. Some of this equipment came with Budd hubs, and, as it was impossible to get wheels of the spoke-type to fit these trucks, we built our own. Fig. 16 shows a wheel which we manufactured. We had a local steel company cut a disc of 1/2-in. steel and using another ring, of the type we use in repairing our wheels, we weld this to the disc.

We then weld pieces of material to take the place of the spokes, so as to support the tires. We drill this wheel to fit into the Budd hub. Notice in the illustration the Budd studs holding the wheel onto the hub. This operation consisted of mostly electrical welding with some machine work.

17. Transmission Repair

Some of our transmissions, which have been in use since before the war began, have started to wear where the shaft bearings fit, as shown in Fig. 17. We cut out the holes and then build them up with a low heat brazing material. Then, using a fly cutter in a drill press, or a boring bar, we machine these holes back to standard. We find that the material put on is tougher than the original cast iron.

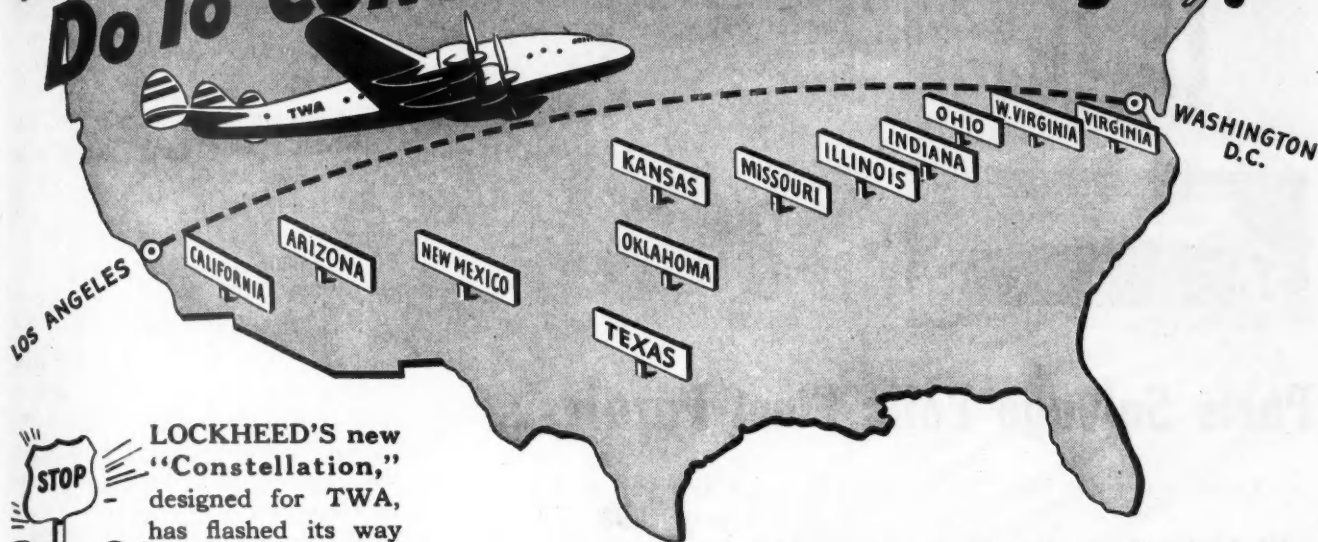
18. Armature Shaft Repair

We have at times had generator armature shafts that were worn, and could not be replaced by either a new shaft or a complete armature. If the shaft has not worn too badly, we could weld these using an asbestos paper, as shown in Fig. 18, to keep the sparks from damaging the commutator. We wrap the rest of the armature in a wet rag, to keep the heat from doing any damage.

We then take this armature, chuck it up in the lathe and machine back to standard. We also have repaired some armatures, where the shaft had broken, by cutting the shaft off, making a stub shaft with a thread on one end, usually threaded against rotation of the armature. We then drill and tap the shaft on the armature, then screw the stub shaft in. We have at least six armatures repaired in this way, in operation.

(TURN TO PAGE 76, PLEASE)

What Would Barriers In The Clouds Do To "CONSTELLATION'S" Flight?



LOCKHEED'S new "Constellation," designed for TWA, has flashed its way across the United States in history-making time—6 hours and 58 minutes—from Los Angeles to Washington, D. C., setting the fastest transport flight record ever made.

This gives you an idea of what can be expected in the exciting days to come—providing your State and the rest of them don't set up barriers to prevent it!

Ridiculous? Perhaps it is. But isn't it equally ridiculous to hamstring the transportation system which is already serving you—motor transport?

And that has been done!

The Trucks and Trailers which haul the clothes you wear and the food you eat—nearly everything you use, in fact—are prevented, by State Law, from serving you to the maximum of their ability.

Did you realize, for example, that in the 48 States there are:

- At least nine different State limits governing the length of a truck-and-trailer?
- At least seven different limits controlling axle weights?
- At least thirteen different gross-weight allowances?

And no matter how liberal your

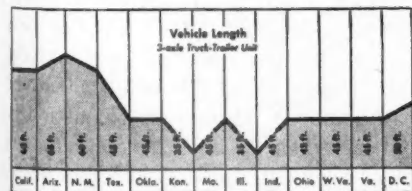
State may be, the man hauling goods for you must conform with the limits of the most restrictive State on his route.*

It's as ridiculous as it would be to have different laws in each State governing the Constellation's flight—forcing TWA to sacrifice what engineering genius has developed for the public because some one State demanded smaller, lighter, slower air transports.

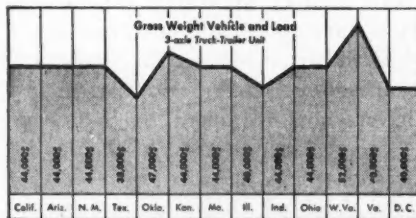
And, ridiculous as this sounds—remember that it is a parallel situation to the one under which Trucks and Trailers now operate.

Since it means dollars out of your pocket—for the public pays the cost of reduced efficiency in transportation—wouldn't you like to know how your own State stands on this subject?

*STATES OVER WHICH "CONSTELLATION" FLEW SHOWING HOW LAWS OF MOST RESTRICTIVE LIMIT HIGHWAY HAUL



Kansas and Illinois laws control length over the entire route.



Texas law controls weight over entire route.

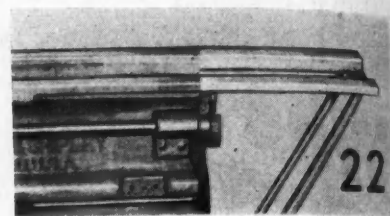
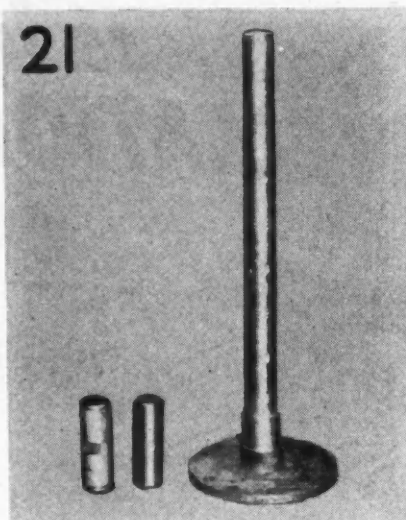
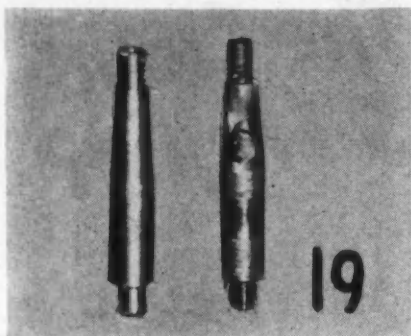
Send a postcard for our free booklet, "Are the United States United?" It will give you the story.



FRUEHAUF TRAILER COMPANY • DETROIT 32

World's Largest Builders of Truck-Trailers

Service in Principal Cities



Parts Salvage Foils Fleet Paralysis

(CONTINUED FROM PAGE 74)

19. Clutch Throw-Out Shaft

The other day we checked the clutch in one of our trucks and found the throw-out shaft was broken. Fig. 19 shows the old and the new shaft which we made up. It was impossible to obtain this shaft in Minneapolis or Chicago. This would have meant tying up the truck until we could get one, which may have taken a week or a month. We made this shaft out of an old piece of axle shafting and within a few hours, this truck was back on the highway.

20. Cross Member Construction

In normal times, our policy was to run equipment not longer than two years in highway service, when we would trade the equipment in for new. Today, most of our equipment is over four years old. We now find

it necessary to repair such parts as frames, cross members, cabs, and to rebuild fenders. Fig. 20 shows a cross member which we made. In making this member, we took two T-bars made up of $\frac{3}{8}$ -in. material, welded them together, put the gusset plates on and drilled them to fit. These cross members are standing up very well.

21. Brake Pin

Fig. 21 shows a factory manufactured brake pin, one made by us and the axle shaft from which we made the pin. We find that this pin gives better service than the factory manufactured type.

22. Lathe Extension

We found our largest lathe was too short to handle some jobs satisfactorily. As it was impossible to get new equipment, we made up two

pieces to match up the bed of our lathe and attached these pieces to the lathe as shown in Fig. 22. All we needed was room on which to put our tail stock. This was provided by the extension.

Miscellaneous Jobs

For a long time, we have been making and repairing parts for our universal joints and drive lines. We have picked up at truck junk yards the various parts of the type of joint or drive line we use, and remade these pieces so they fit the ones we have. We have had some success in electrically welding broken stub shafts, but we do not make a practice of using these shafts any longer than is necessary.

We have, from time to time, had trouble in getting certain Timken cups, especially a cup used in a Mack differential. We have taken these cups, if they are not too badly pitted, chucked them up in the lathe and ground them. We have been able to grind up to .040 out of these cups and still get satisfactory service. Incidentally, these cups are of the adjusting type. We now have approximately 15 or 16 cups which we have ground in operation; some of them for over two years.

END

(Please resume your reading on P. 48)

Millions of Drivers Not Fit for 75 m.p.h. Roads

Eyes of millions of American automobile drivers would be menaces on the proposed national system of speedways now pending before Congress, asserts the Better Vision Institute. The proposed roads, to connect all cities of 10,000 or more population, would be designed for cruising speeds of "not less than 75 miles an hour."

Although the visual qualifications of drivers in respect to high speeds

are almost wholly neglected by automotive safety organizations, enough facts have come to light to show that eyes of drivers have an important bearing on safety, and that many drivers now are operating their cars at speeds beyond their visual qualifications, says the Institute.

"A series of studies on the relation of seeing distances to car speeds was made at Iowa State College, which led A. R. Lauer, associate professor of psychology, to conclude that unrestricted driver licenses should be given only to those having 'at least

20/40 vision in both eyes, or 20/30 vision in one eye. When vision reaches 20/80 or 20/100 it may be best to limit the applicant to daylight driving or to speeds below 30 miles an hour.' For eyes with visual acuity of less than 20/100, he recommends top speeds of under 25 miles an hour, saying that such 'recommended speeds will seem quite low, but they are calculated in accordance with the known facts of seeing and stopping distances. They actually represent the safe speeds for the classes of drivers concerned'."

A PACKAGE OF FULL POWER

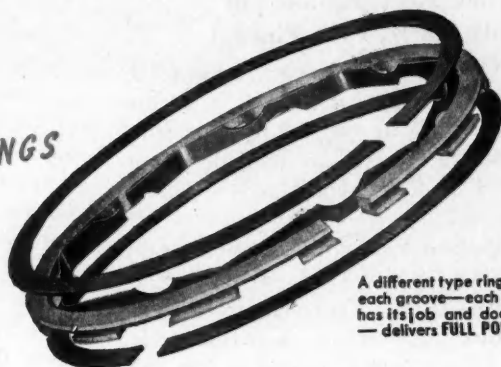
...That Packs
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*TOMORROW'S RINGS
TODAY*



A different type ring for
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has its job and does it
— delivers FULL POWER

GIVE worn motors a break — install
Moog X-Plus Piston Rings. This modern
new style X-Plus steel oil set-up in-
sures **FULL POWER** reconditioning re-
sults.

The Moog X-Plus Piston Ring set is
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engineered features that control
oil — prevent blowby — give
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seven steps of Moog X-Plus
superiority that means **FULL
POWER** performance and
eliminates costly come-
backs.

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THIS COMPLETE SPRING
SUSPENSION SERVICE**



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ELECTRICALLY
HEAT TREATED
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where springs are
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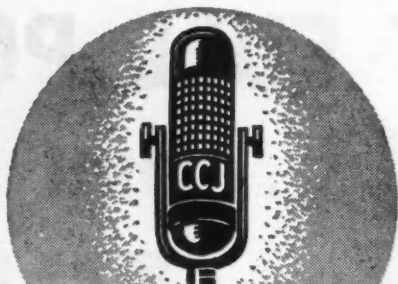
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CCJ NEWSCAST

Truck Registrations Off Only 2.8%, PRA Finds

Commercial vehicle registrations in 1943 totaled 4,480,176, a decline of 127,910, or only 2.8 per cent from 1942, according to statistics compiled by the Public Roads Administration.

Passenger car registrations were 25,912,730 in 1943, a decline of 1,956,016, or 7 per cent from 1942.

Bus registrations increased 1301, or 1.2 per cent to a total of 106,702.

State motor-carrier receipts were \$24,702,000, an increase of 12.8 per cent over 1942. Since most of these are levied on a ton-mile basis, the 1943 increase as well as the 1942 increase of 6.4 per cent reflect the important part of highway transportation in the war, according to the Public Roads Administration.

71.7 Rating of Regular Grade Gas Last Winter

The Bureau of Mines of the Department of the Interior announced today that the average octane rating of gasoline sold to motorists by service stations of the United States during the last winter—1943-44—was 71.7 for regular-grade fuel, 75.8 for premium-grade, and 60.5 for third-grade gasoline. In the winter of 1942-43, the bureau reported, the average octane rating was 72.5 for regular, 79.6 for premium, and 63.1 for third-grade gasoline.

30,000 Miles Averaged By Synthetic 6.00x16 Tires

Of interest to fleet passenger car users, concerned over the possibility that they might not be able to obtain new tires when their present tires wear out, is the announcement by the Goodyear Tire & Rubber Co. that

Goodyear has already produced its 1,500,000th, popular size 6.00x16, synthetic rubber passenger tire.

Satisfactory performance of these tires is shown, Goodyear officials said, in the result of a recent survey among users of more than 8000 of the tires who reported them to be 96 per cent as satisfactory as natural rubber tires.

Operators of a large fleet of taxicabs in a midwestern city, who use more than 3000 GRS tires on their cabs, reported that the tires averaged 30,000 miles before recapping was necessary. This approximate mileage figure has also been reported in other parts of the country.

70,000 Veterans Return to Jobs Each Month

Discharged veterans of the present war are entering industry at the rate of approximately 70,000 per month and the majority are going into war production jobs, according to a report based on information from various government agencies. Veterans are seeking jobs different from those they held before entering the services. Only 25 per cent have returned to jobs they held before entering the services.

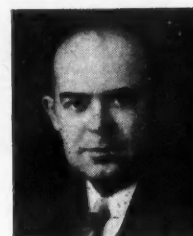
Truckstell Manufacturing Co. Incorporated at Cleveland

Announcement has been made of the incorporation at Cleveland, Ohio, on May 31, of the Truckstell Manufacturing Co., a stockholder distributor organization consisting of approximately 40 national distributors of truck equipment, Don Meyer and Milt W. Anderson, founders of the company and others.

This step will equip this group of experienced equipment distributors
(TURN TO PAGE 80, PLEASE)



Robert J. Ritchie, left, has been appointed manager of the market development division of the sales department of the Carnegie-Illinois Steel Corp. Right, G. S. Staunton, former Ternstedt sales manager, who has been made assistant automotive sales director of Bendix Products.



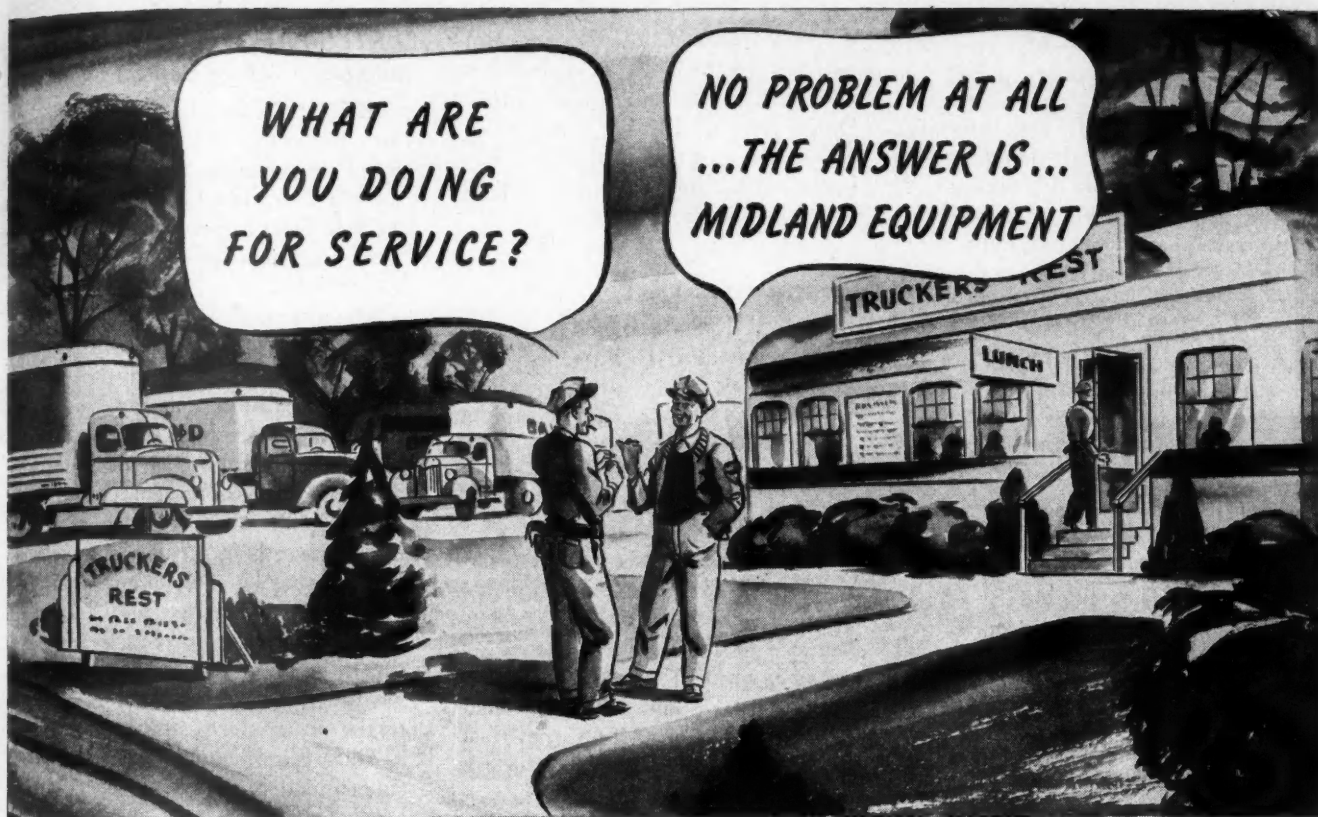
E. J. Lucas, left, recently appointed sales manager of the Kingham Trailer Co., Louisville, Ky. Right, Walter H. Paulin, who has been appointed district sales supervisor of the spark plug division of the Edison-Splittorf Corp.



James T. Greenlee, left, sales manager of the Imperial Brass Mfg. Co., has been elected chairman of the Chicago section of the S. A. E. Right, Carl B. Schnippel, who has been named assistant sales manager of Purolator Products, Inc., with headquarters in Los Angeles.



W. J. Heil, left, has been named sales manager of automotive trades for the Minnesota Mining & Mfg. Co., with headquarters in Detroit. Right, J. Nelson Kelly, who has been appointed executive vice president of the Fibre Lock-Nut Corp.



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distributor about the
Midland
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POWER BRAKE KITS

Those who Know POWER BRAKES
Choose MIDLAND

The Men Who Drive, Know MIDLAND Dependability

Midland Power Brakes are remarkably free from service requirements—but when service is necessary you'll find a Midland station near to take care of your needs.

The Midland service organization covers the whole country. There are nearly 150 distributors located in all principal cities, and many more dealers in towns from coast to coast. Careful engineering and rugged construction explain why Midland Power Brakes offer you long, trouble-free service and economical operation. See your Midland distributor, or write to us for complete information.

THE MIDLAND STEEL PRODUCTS CO.
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MIDLAND

CHRISTENSEN

POWER BRAKES

NEWSCAST

(CONTINUED FROM PAGE 78)

to coordinate, amplify and intensify their activities as distributors of truck equipment and converters of trucks. The step will also provide better facilities for offering nationally known standardized products to meet the needs of a greater number of truck operators.

At the meeting plans were laid for the development and manufacture of new equipment and for expansion of facilities to handle additional lines of manufacturers needing the service of such a national distributor organization. Present lines now distributed include: Eaton 2-speed axles; Thornton 4-rear wheel tandem drives; Thornton automatic locking differentials; Truxmore third axles; Clark heavy-duty axles; Clark booster engine conversions; Clark heavy-duty cast wheels; Watson auxiliary transmissions and Champion safety gas tanks.

Donald W. Meyer is president of the newly incorporated company, and J. D. Maynard, of Detroit; C. A. Bieber, of Cleveland, and Walter Blaul, of Chicago, are vice-presidents directing the various committees. F. J. Hessler, of Cleveland, is secretary-treasurer. Milton W. Anderson is chairman of the board, which consists of: L. N. Ross, Portland, Ore.; L. A. Sleeper, Newark, N. J.; Neil Schilling, of Memphis, Tenn.; John Groenier, Chicago, Ill.; J. D. Maynard, Detroit, Mich.; L. Howard Wilcox, Pittsburgh, Pa.; S. C. Olson, Minneapolis; C. H. Smyth, Boston, Mass.; W. J. Boggs, Kansas City, Mo., and Donald W. Meyer.

Motor Carrier Freight Volume Off 6.1% in April

Volume of freight transported by motor carriers in April dropped 6.1 per cent from the corresponding month last year, marking the second consecutive year-to-year decrease since September, 1940. That was reported early in June by American Trucking Associations which made note that the decrease represented a widening of decline from an 0.3 per cent dip as between March of this year and the like month of 1943. The April tonnage was 7 per cent smaller than in March of this year.

As a result, the ATA index figure, computed on the basis of the average

monthly tonnage of the reporting carriers for 1938-40 as representing 100, slid down to 172.12 from a March level of 187.50.

A portion of the decline may have been attributable to strikes in the New England area.

Keely Leaves ODT

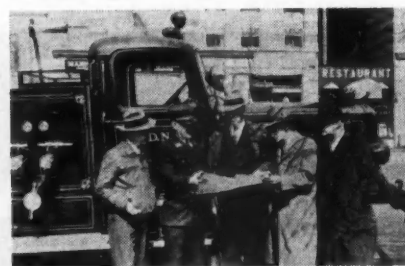
Paul W. Keely resigned as district manager of the ODT Pittsburgh, Pa., office, effective June 10, to return to his business—Valley Motor Freight, New Castle, Pa.

Hastings Sponsors Godwin

Earl Godwin, veteran newspaperman and popular radio commentator, will launch a 15-minute weekly program over 170 Blue Network stations beginning Friday, July 7, from 10:00 to 10:15 p.m., EWT. Sponsor will be the Hastings Mfg. Co. of Hastings, Michigan, manufacturer of piston rings.



Miss Eva Cralle of International Harvester's St. Louis, Mo., branch is really an "old timer" in the truck business. This popular lady, who has served under nine branch managers, was honored on her twenty-fifth anniversary with IHC at a luncheon. Left to right: C. R. Morgan, farm equipment branch manager; Miss Cralle; and J. W. Blackmore, motor truck branch manager.



A new "through traffic road test" record was set when these men supervised the testing of five Mack pumpers through New York City's traffic at midday over a 20 mile route in 30 minutes and 35 seconds.

Fleet Supervisors' Course at State College Sept. 11

Each Fall for the past six years the Institute of Public Safety at the Pennsylvania State College has offered a training course for Motor Vehicle Fleet Supervisors. The course this year will be conducted Sept. 11-16, 1944.

The aim of this supervisors' course is to present, largely through demonstration, a complete program for selecting, training, and maintaining fleet personnel, which shall determine physical, mental and emotional fitness and possible compensations; driving skills and necessary exercises to increase them; traffic and vehicle maintenance knowledge and available material to augment it; attitude and morale and definite ways to improve them, and training or re-education needs for each individual according to the accumulative data.

Those eligible are fleet owners, fleet superintendents, assistant superintendents, fleet engineers, chief mechanics, dispatchers, driver instructors, transportation officials, and others interested in safe driving and conservation of vehicles. A fee of \$10 per student is charged for this course. However, in some instances all costs are covered by interested organizations.

Buckeye Takes Over Opaco

Entire manufacturing and merchandising rights to the Opaco "safety-fill" nozzle have been acquired recently by Buckeye Iron & Brass Works, Dayton, Ohio. Stocks of complete nozzles and replacement parts are now available through Buckeye. They may now be obtained by specifying Fig. 820, Buckeye-Opaco nozzle or parts.

Driver's Manual Available

The stiff-covered, 158-page "Driver's Manual" that is part of The White Motor Co. "Personalized Service Plan" may now be obtained from White branches and distributors at a cost of 40 cents a copy. The manual is a compilation of authoritative data based on the experience of thousands of successful drivers, the teachings of authorities throughout the industry, and the findings of company research. It covers correct practices in all brackets of motor vehicle operation.

(More News in Back Pages)

not 2...
not 6...
but 26

It takes 26 basic designs to meet every need

To provide exactly the right piston rings for every engine in your fleet, Sealed Power engineers have developed not 2, not 6, but 26 basic designs for use in Individually Engineered Ring Sets. Each set contains rings specifically engineered to do the best possible job in a particular type and make of engine. Sealed Power has been refining these sets for over five years —has been producing rings for car, truck and engine manufacturers more than 30 years. For best results, re-power with Sealed Power motor parts. Sealed Power Corporation, Muskegon, Michigan and Windsor, Ontario.

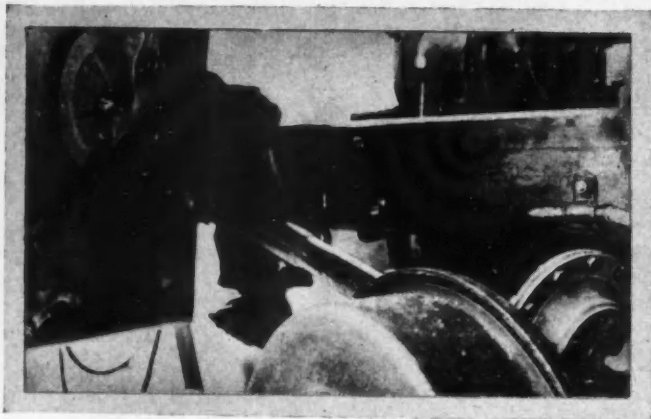
*Piston Rings, Pistons, Cylinder Sleeves,
Piston Pins, Valves, Water Pumps, Bolts,
Bushings, Tie Rods, Front End Parts.*

BUY MORE WAR BONDS!

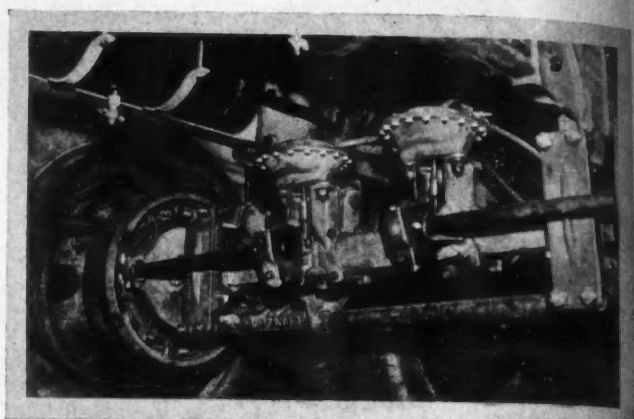


SEALED POWER PISTON RINGS

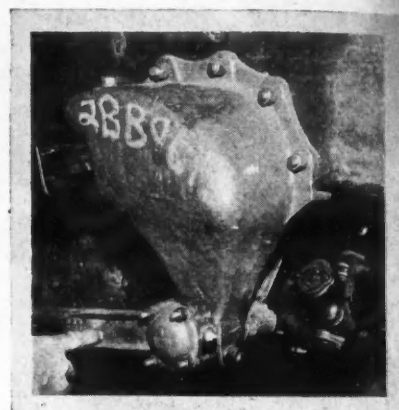
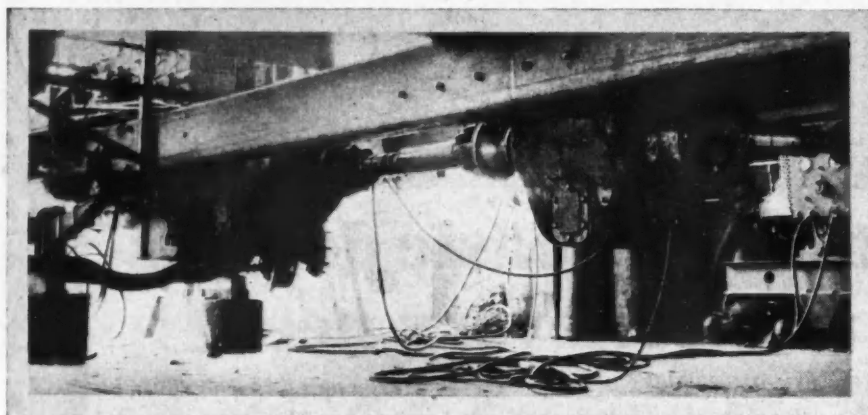
BEST IN NEW TRUCKS! BEST IN OLD TRUCKS!



Closeup of right-hand steering assembly as converted for left-hand steering in Lyons' cab-over-engine conversion.



Worm's-eye view of the rear assembly showing the trailing axle and mounting of the Westinghouse braking equipment.



The illustration at left shows part of the frame amidship, the transmission and Spicer drive. The illustration above shows the Sterling floating spring hanger. At lower left, mechanic points out weld on rear radius rod.

Fleet Builds Trucks From Salvaged Parts

(CONTINUED FROM PAGE 51)

miles carrying 1,000,000 lb. of revenue cargo.

Keeping a careful check of revenue returns, we have found that 500 lb. extra freight carried on this run for the 21 average trips per unit means an extra \$1050 in freight revenue annually. And, multiplying this figure by three for 1500 lb. extra carrying capacity, the increased earning power of the unit is the tidy sum of \$3150 annually.

In terms of truck cost, this extra earning capacity of five such trucks for one year more than pays the construction cost of two complete trucks. In that way we can add two trucks a year to our fleet of 52 units without nicking the treasury for a single dollar. And we can use them, too, with the steady increase for this type of service such as we offer.

Maybe the ODT did us a favor, unwilling though it may be.

Construction Details

Now, let's take a look at one of our 32-ft. c.o.e. trucks in the making. Nearing completion, this is the second of its kind (the others being tractors), both 125-hp. Cummins diesel-engined.

Starting with the two rails, the longitudinal frame members, these are of 5/16-in. steel channel, nine in. deep with three-in. flanges fitted with cross members, all-electrically welded to a 34-in. frame. Of the six-wheel type, all three axles have Sterling spring hangers and brackets. Rear radius rods are two-piece welded steel, 36 in. in length and balanced to the 64th of an inch for perfect alignment of wheel traction.

Drive is through a 7441 Brown-Lipe standard transmission converted to remote control. Top of transmission is removed and welded to a specially designed box with sliding rods.

This conversion is necessary for the c.o.e. type of shift. Special control rods work over motor hangers on side of engine for easy shifting.

Midshift transmission is a 1703 Brown-Lipe with a pair of 1700 Spicer drive lines to a 1757 Timken Wisconsin rear with a 6 $\frac{3}{8}$ ratio mounted on 10.00x22 tires. An attachment axle is added for extra weight and length requirements.

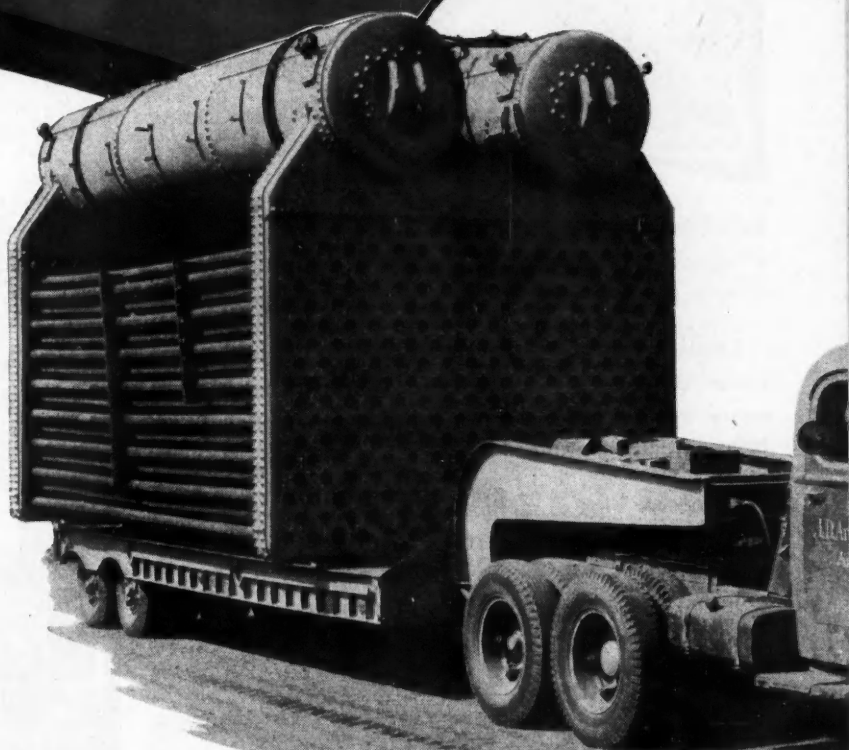
The steering assembly is unusual in that a right-hand steerer is used, converting it into a left-hand installation to bring the drag-link close in to the frame, to obtain a good turning radius to permit the mounting of our own designed pusher-type clutch pedal on special brackets that allow the control rods to lead back under engine fuel pump. The front axle also is a Timken. Full floating Sterling spring hangers are used on front as well as rear axles.

(TURN TO PAGE 84, PLEASE)

SHULER AXLES FOR LITTLE GIANT TEN WHEELERS!

Sure, both the Little Giant Ten Wheeler and its Shuler Axles look almost insignificant under this big industrial boiler. But that's simply another tribute to Ten Wheelers and Shulers—and the bigger the job, the better we both like it!

All over the world today — with Army, Navy, Marine Corps and most of our Allies — Shuler Axles are helping to roll the enemy back. Here at home, you'll find Shulers helping on almost every sort of transportation work you can name. Have you given any thought to how we might be able to help you?



SHULER AXLE CO., *Incorporated*, LOUISVILLE, KY.

Export Division: 38 Pearl St., New York, N. Y.
West Coast Warehouse: Ford & Derby Streets, Oakland, Calif.

FLEET BUILDS TRUCKS FROM SALVAGED PARTS

(CONTINUED FROM PAGE 82)

Standard instruments are installed in the cab including a Wagner electric recording tachograph, giving us a complete record of truck performance between terminals. Electric system is Delco-Remy, and we have our own batteries made to Lyon specifications and carrying our name plate.

Two all-welded 135-gal. fuel tanks

of 18 gage steel are mounted; one on either side of the frame. There also is a 10-gal. lube oil tank mounted ahead of one fuel tank, and made of same gage and same type of construction.

Westinghouse automatic air brake equipment is standard on all units, using 90-110 lb. main reservoir pressure with 20 per cent less pressure to brake diaphragms. Other standard items include air horns, sealed beam headlights and automatic trailer air-hitch. All electric and air lines are

led alongside of frame member and fastened with Diamond clamps.

Salvaged and rebuilt parts and materials are used in the construction. They include rear ends, transmissions, engines, etc.

The body of this truck is 26 x 8 x 7½ ft., inside measurements, and of all aluminum construction. It has been in constant service for 18 years and in that time not over \$50 has been spent on it. Steel bodies have to be overhauled each six years. Yet, after three times the service of a steel body, this aluminum one is in first class condition for mounting on the new chassis under construction.

The cab is constructed of reclaimed aluminum and steel with oak reinforcing in channels and corner posts. This pertains to frame members, too, the wood strengthening lighter steel and keeping weight down by using the combination.

Brakes are mounted on all six wheels using flexible connections. Front wheels have regulating valves for changing pressure of cutting out front brakes altogether, if desirable. Even our convertor gears have air brakes mounted on them.

Main brake drums use 5½ in. American brakeblok or Grayrock lining of ¾ in. We do our own lining, but drum work is sent to an outside shop.

Complete, the unit weights 16,500 lb., carries 15,000 lb. and its total cost is approximately \$8000.

Maintenance Program

Diesels are rebuilt annually, their average mileage being 12,000 per month. Average age of our engines is six years with an average service mileage of 175,000. Speed range is 1600 to 1650 rpm. at 160-180 deg. Fahr. Using 40 cetane fuel, the fuel pump setting is for 26 cc. Each 10,000 miles the injector timing and setting is checked.

Oil is changed each 1000 miles using filters on all engines. Filters are changed each trip using factory-made cartridges. No additives are used.

We change cylinder liners when taper exceeds .008; pistons are given .005 clearance and discarded at 150,000 miles. Replacing crankshafts when cut of round, 002-003, they are magniflued and metallized, this work also being done by an outside shop.

All engines are pulled each 50,000

(TURN TO PAGE 87, PLEASE)



BUILT especially to withstand the wear, tear and rough usage of commercial body service, Hansen Hardware readily adapts itself to heavy-duty performance.

Lasting as long as and often longer than the body, trailer or tank on which installed—strongly made in every way, Hansen extends its peace-time dependability to units engaged in war-time service.

Whatever type of service in which Hansen-equipped trucks, trailers and tanks may be engaged, now or later, Hansen will stand up under hard, heavy-duty, gruelling service—for victory over repairs, breakage and replacements.

If you do not already have one, send for descriptive catalog showing the complete Hansen line of Commercial Body Hardware and one-hand Tackers.

A.L. HANSEN MFG. CO.
5047 RAVENSWOOD AVE., CHICAGO 40, ILL.



FLEET BUILDS TRUCKS FROM SALVAGED PARTS

(CONTINUED FROM PAGE 84)

miles and replaced by one of the two spares now carried by reason of a slow receipt of parts. Two men can change engines in 6-8 hr. Complete engine overhaul is a 72-hr. job also using two mechanics.

For mechanical department we prefer all-round men but specialists are used for engine tuning at 10,000 miles and on electrical work. Records are kept of all work on each engine.

Parts are a problem when we have to use wartime issue. Life is reduced at least by 60 per cent, by test. Main and con-rod bearings chip because of lack of bonding. All valves are rebuilt using pre-wars only, thus keeping this problem to a minimum. In general, other wartime parts are giving little extra trouble. This includes transmissions, rear axles, engine gaskets and hose connections. All trucks carry spare axles, and we break one or two a year per unit. Gear ratios have been changed to 6 to 1.

Tire sizes have been reduced, and we use up to 9-in. rims, improving tire life. Present tires are running up to 60,000 miles, recaps to 40,000 miles. Length of recap service depends on type of recap work. Most failures are due to faulty workmanship. Recaps are used on all but front wheels because of extra weight there on cab-overs. Tire work, except service work is sent out.

Our principal tire problem is that of section failure. This attempt at tire repair is a complete failure. There isn't a thing we can say in its favor. On the contrary, it is a constant menace on the road. Besides being costly, it sometimes never gets out of town. Failures are most frequent before the 250-mile figure is reached and to get 1000 miles, that's in the class of miracles. They cannot be placed on trailers, at all. The sway is too much for them. There is no place they are fit to be used. Without question, the order to do this should be rescinded and that at once.

Before ODT's edict, sectioning was rare. Experience proved it non-profitable and tire-destroying, except in rare cases. Wrecks by their blowing out were inevitable. But we did use tire liners and patches with good results. Some of these repairs ran

high mileage and with minor loss. Many thousands of useful miles are now lost and good rubber scrapped because of this sectioning order.

In closing, I would like to add that the installation of our preventive maintenance system has not only kept our cost to pre-war level, but it has eliminated road failures to two or three a year where previously we have had three in 24 hours.

By using only a day shift of 8 hours, no Sunday work except in emergencies, our staff of 15 mechani-

cal and maintenance department employees have little labor turn-over with a consequent high standard of team work.

And if anyone of the readers wants to drop into the terminal around ten in the morning, he can join "Tiny" Blohm and his gang of hustlers in a mug-up in the parts shack galley—a regular Lyon mid-morning feature.

END

(Please resume your reading on P. 52)

ANTHONY LIFT GATE HYDRAULIC

CAPACITIES
1000 LBS. TO 1500 LBS.

MOUNTS ON TRUCKS NOW IN SERVICE OR ON NEW TRUCKS

"A LABOR SAVER"
"TAKES PLACE OF EXTRA MAN"
"HAS MORE THAN PAID FOR ITSELF"
"DAMAGE CLAIMS PRACTICALLY NIL"

ONE ♀ MAN now does the work of THREE♂♂♂

- "We can recommend this Loader to anyone, as they certainly are not only a labor saver, but they also protect the steel drums which are very hard to secure. We are ordering another."—The R. J. Brown Co., St. Louis, Mo.
- "The Lift Gate has definitely taken the place of an extra man; if we could not buy another we would not part with our present one for many times what we paid for it."—Continental Oil Co., Louisville, Ky.
- "Our merchandise damage claims have been practically nil."—M. F. Rockey, Moving, Storage, Packing & Shipping, New Cumberland, Pa.
- "Best possible testimonial—ordering two more next week."—Springfield, Ill.
- "This equipment has more than paid for itself since purchased, and we recommend the installation of such equipment on all trucks where loads of 150 lbs. or over are handled."—Bakelite Corporation, Bloomfield, N. Y.

A PARTIAL LIST OF OTHER USERS

Socony Vacuum, Coca Cola, Standard Oil, E. I. DuPont deNemours, and a list of other users, like the Union Pacific Railroad, are enthusiastic operators of the Lift Gate Loader.



ANTHONY'S 2B PLATFORM HOIST—Makes inexpensive dump body out of platform, stake or grain body.

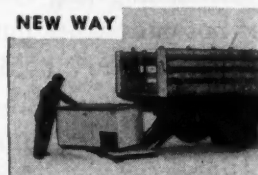
ANTHONY COMPANY, INC.

STREATOR, ILLINOIS

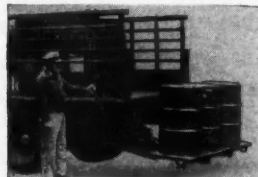
The low price will surprise you. Write or wire for complete information—address Dept. D-22.



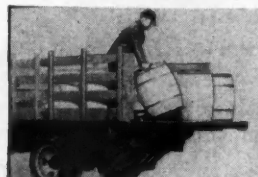
3 men required to load truck.



1 man slides heavy cooler onto lowered LIFT GATE.



1 man operates lever to raise 3 heavy oil drums.



1 man easily loads barrels from raised LIFT GATE.

QUIZ ANSWERS

CCJ Quiz on Page 70

1. a. You would have to keep your width to 84 in. to operate in Florida, your height to 11 ft. to operate in Oregon, and your length for a single vehicle to 26½ ft. to operate in Kentucky.

2. a. President Roosevelt. Although all the state representatives present promised to cooperate, some states

have not yet adopted the minimum size-and-weight code, and a few still insist that operators from other states purchase new license plates.

3. c. Iowa law actually permits Iowa vehicle operators 17,000 lb. weight per axle while restricting "foreign" operators to 16,000 lb. per axle when in Iowa.

4. d. Special taxes levied by states on truck operators would be sufficient to maintain every mile of state highways and build 8800 miles of new

roads each year besides. So, it looks as if highway maintenance is an excuse rather than a reason for a lot of taxes and fees on trucks.

5. d. The weather and other natural causes are estimated to be responsible for three-fourths of highway maintenance costs. Roads constructed to withstand the vagaries of temperature and moisture will be strong enough to carry whatever traffic passes over them. It has been shown that pavements from which all traffic has been barred have deteriorated just as rapidly as identical pavements under steady traffic.

6. a. The idea of some states of determining permissible gross weight on the basis of the net chassis weight has the tendency to stifle progress in truck design. It penalizes any effort to develop engines with a great ratio of horsepower to weight and discourages the use of lighter, stronger steels and light alloys. It permits a greater load for vehicles whose chassis may have been artificially weighted, regardless of the fact that the vehicle may not have the power and strength to handle the loads with safety.

7. a. The load distribution on a cab-over-engine truck is about 1/3 of the weight on the front axle and 2/3 on the rear axle. On conventional trucks, the ratio is about ¼ to ¾. Since the gross weight on the rear axle is usually the limiting factor, a c.o.e. truck will often meet weight requirements of a state, where a similar regular model will not. Also, when a 6-wheel c.o.e. truck is used, there is just about equal load being carried by each axle.

8. d. Competitors of the trucking industry have done everything possible to place restrictions on this new industry.

9. d. We can't see how anyone could miss this one. Obviously, the public pays every cent of the extra, unnecessary cost . . . either in the form of higher prices for the things it buys or higher taxes . . . to pay for all the war materials being shipped by truck today.

10. Every one of the statements is false. Yet, if the best interests of the public were being served, every one of the statements WOULD BE TRUE.

END

(Please resume your reading on P. 78)

Engineered to Keep Vital TRUCKS on the Job

OVER-loading and OVER-mileage need not put a truck out of use. But UNDER-service will! Make it standard practice to use lubricants engineered to keep trucks working smoothly, full time. Use AMALIE Lubricants—a complete line for correct service at every vital lubrication point—produced by the refiners of AMALIE Pennsylvania Motor Oil.

See Your AMALIE Distributor, or write Dept. C2.

AMALIE DIVISION

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88 Lexington Ave., New York 16, N. Y.

Southwestern Distributors:

Sonneborn Bros., Dallas, Texas.

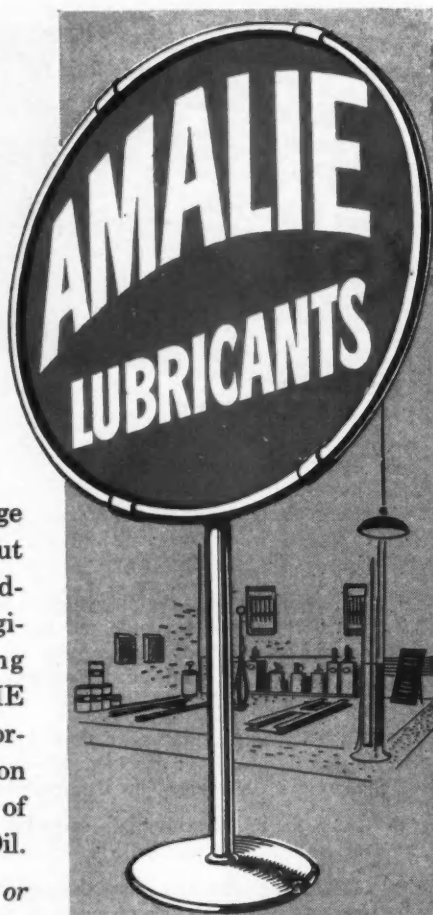


Now More Than Ever—

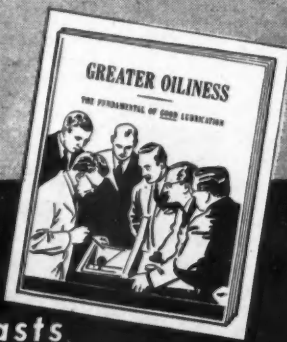
It's AMALIE First . . .

Because AMALIE Lasts

REFINERIES: PETROLIA, PA., AND FRANKLIN, PA. • PLANT: NUTLEY, N. J.



Get Your Copy of "Greater Oiliness," the illustrated booklet that tells why AMALIE is your best buy as a maintenance motor oil.



"POUR IT ON 'EM...
THEY CAN TAKE IT!"

Thor

PORTABLE ELECTRIC
Tools

FOR ALL AUTOMOTIVE SHOP SERVICE

• The Thor Portable Electric Tools you can put to work to speed drilling, grinding, sanding and dozens of other jobs in your shop today are the same Thor tools whose features of design and construction enable them to stand up under gruelling, triple-shift wartime production . . . *the same Thor tools that built the cars you service!*

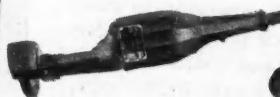
To these dependable quality features add the advantages of light weight, small size and super-power—you'll see why Thor tools do more work . . . faster, at lower cost. Find out how they can speed *your jobs* now. Send the coupon below for details.



Thor's U14K 1/4" Drill, plastic-housed model of a complete Thor light and heavy duty line for service drilling.



Thor's UBD 3/8" Drill, one of the Thor heavy duty machines, of lightweight construction, powered for continuous service.

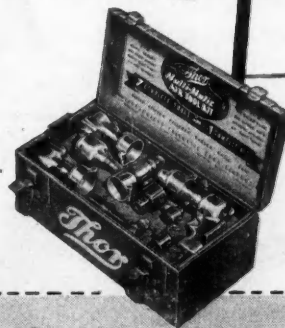


Thor's U54 Grinder, one of a range of models from 4" to 6" wheel capacity for all types of grinding, buffing, polishing, etc.



Thor's U58 Sander, smallest of a range of lightweight models from 7" to 9" disc capacity, designed for general automotive service.

HARNESS THE MAGIC POWER OF AIR with Thor Multi-Matic Air Tools for shop service. Smaller, lighter, more powerful than electric tools; cost less to maintain. Run from compressor as small as 1 1/2 H.P. Complete line includes Drills, Grinders, Polishers and Sanders. Send coupon for details.



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WITH THE TOOLS
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Sold by Leading
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Here's What's New in Hydraulic Units

TOWER LIFT with Low Initial Height

Here is the answer to a modern Tower lift—new simplified design, new engineering, new type construction and new low cost.

This new tower is a design achievement which permits improved body styling, has low initial height with extreme elevations. Tower is controlled from the lift platform which is operated by twin telescopic rams. These units can be adopted to meet your requirements—from the streamlined truck to the open back utility truck.

Patented

DUMP HOIST for ½, ¾ and 1 Ton Trucks

Here's a new, lightweight, high pressure hydraulic dump hoist which permits high speed dumping. Low mounting and low loading height, under 48". Two hydraulic rams offer utmost stability and enable operator to raise and lower dump while truck is in motion. No subframe... fewer "wear out" parts... ideal for hand loading. Designed for the lighter jobs, up to 2000 pounds payload.



Descriptive literature available. When writing please advise in which unit you are interested, Towers or Dump Hoists.



BIRD-WHITE COMPANY

DEPT. 4. 3119 WEST LAKE STREET, CHICAGO, ILLINOIS

BETTER PARTS CUT ROAD FAILURES

(CONTINUED FROM PAGE 52)

These figures startled us, because, with pre-war quality parts, we rarely ever ground a crankshaft under 200,000 miles. But with those inferior parts we had to do this job on some units at 10,000 miles, with 15,000 miles a fair average.

Inferior valves also caused engine damage. For example, if the position is just right, the top of the valve will go through the head of the piston. Both intake and exhaust valves caused trouble. The two-piece welded valves averaged less than one-third of the service of good pre-war valves. That's conservative, as our pre-war valves rarely ever had to be replaced under 50,000 miles.

Here is a typical case. We bought a rebuilt engine and installed it on Jan. 27. After 14 days (about 200 miles per day), we had to remove the head and install a new valve to replace the one broken, due to bad material. The extra labor involved was four hours. Total loss of tractor, 12 hours.

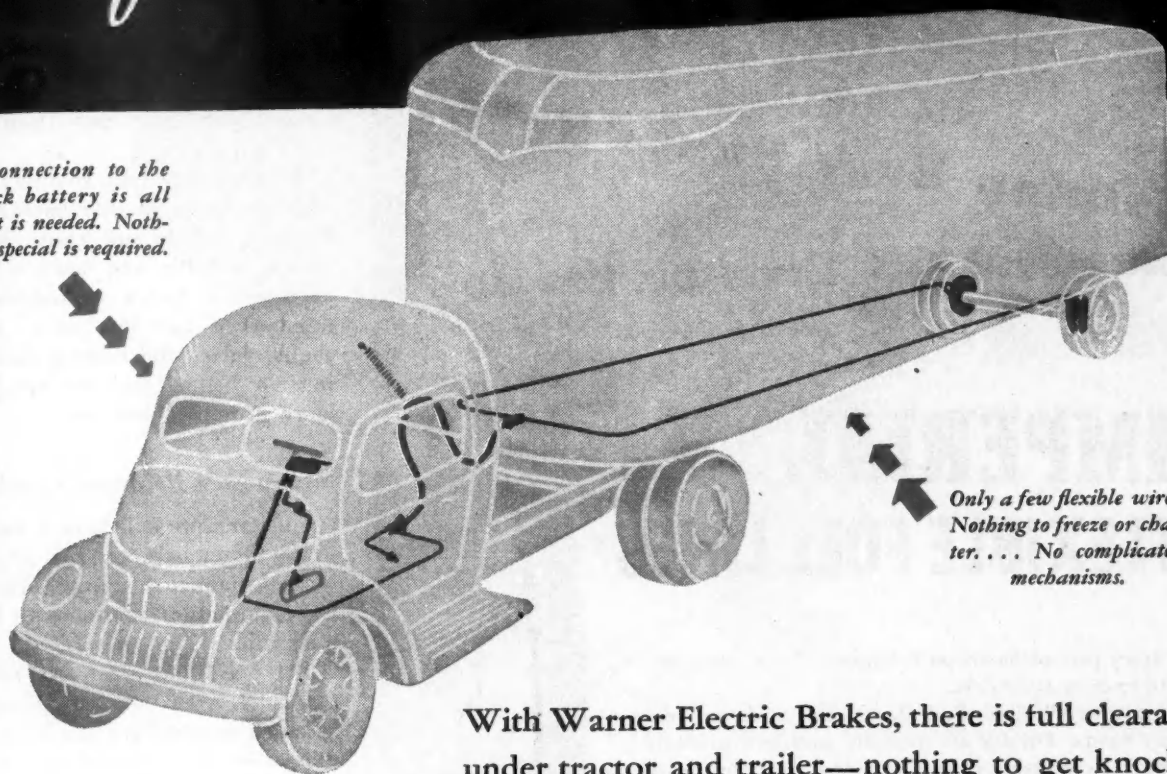
In another engine, we put a full set of wartime valves. On the first trip, the engine failed at Delphos, Ohio, 50 miles out. A valve broke off and went through the head of a piston. We pulled the unit back to the shop. We had one extra head ready, so we pulled the pan and replaced the piston. Then the unit was sent to Chicago with a load. At Churubusco, 10 miles from Fort Wayne, another valve went. A mechanic with service truck had to go out and tow the broken unit back to the shop.

Another engine broke down near our Lima, Ohio, terminal. As the trouble was believed to be only minor, we pulled it into Lima, but found serious valve trouble, and we had to pull it back to our Fort Wayne shop, a distance of 65 miles. Then we had to send another tractor to replace the one down, to move the loaded trailer filled with vital war materials. This involved nearly 200 miles additional, including the pull-ins, and a full day of lost labor, not counting time out for the crippled unit and the delay at the war plant waiting for its material.

The bearings in another heavy-duty (TURN TO PAGE 92, PLEASE)

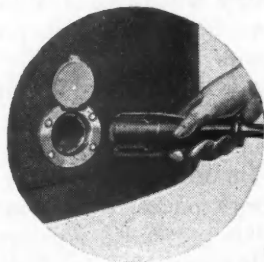
NO OTHER BRAKE EQUALS THE WARNER ELECTRIC BRAKE *for* SIMPLICITY

A connection to the truck battery is all that is needed. Nothing special is required.



Only a few flexible wires. Nothing to freeze or chatter. . . . No complicated mechanisms.

PLUGS IN AND OUT LIKE A RADIO



The plug-in cable provides current for brakes, tail light, stop light and running lights.

Right now, the needs of our armed forces come first! However, if you are on the "essential" list we can supply you with brakes.



With Warner Electric Brakes, there is full clearance under tractor and trailer—nothing to get knocked off or leak—no exposed braking equipment—no rods to rattle—no tubing to split—no condensation to freeze. Warner Electric Brakes require only a wire to each wheel and will operate under water without short circuiting. Minimum maintenance cost.

WARNER ELECTRIC BRAKES

WARNER ELECTRIC BRAKE MANUFACTURING COMPANY • BELOIT, WISCONSIN

BETTER PARTS CUT ROAD FAILURES

(CONTINUED FROM PAGE 90)

unit burned out in less than 6000 miles after it had been completely overhauled, including regrinding the shaft .0001. The truck was idle for three weeks, waiting for new bearings, and while the crankshaft was being reground to .0020 in. under-size.

Substitution of inferior metals in

wartime radiators resulted in failures in four to six months. Since WPB released better metals for radiators they are functioning a lot better, which would seem to show that nothing was saved along the line by using cheap metals in replacement parts.

Slight Improvement Noted

However, we are encouraged by some slight improvements since the first of the year. We have made some progress on our own account, and close working with the local ODT

officials has helped considerably.

By March 1, we had reduced the number of idle units from 25 per cent, average, to 10 per cent. This was due to some improvement in the quality of parts coming through, partly to more prompt deliveries and partly to some changes in our maintenance program.

First, several months ago we began to file a report with our Fort Wayne ODT offices, listing the items which we were short on, and which were hard to get or on which long delays were common. That office would get in touch with suppliers where we placed orders direct to facilitate delivery. Quite often the ODT checks other sources of supply for us and, in that way, succeeds in locating the needed parts and gets them to us more quickly.

Whether this had anything to do with the better quality parts coming through, we do not know, but the quality is better and that has been a determining factor in reducing the number of our idle units. Crankshafts, valves and bearings are holding up better, and we are getting more prompt deliveries.

Manpower Problem Continues

However, we still have a long way to go to get back on any kind of a normal maintenance basis. The manpower situation continues to be the big problem right now.

For one thing, we try to keep the same driver on the same power unit as much as possible. We have found that when one man drives a truck regularly, he becomes familiar with the sounds, and often can detect trouble coming, and avoid a breakdown by turning it in promptly for repairs or adjustments. Correcting any weakness in the unit before a major breakdown occurs—preventive maintenance—is our best insurance for improved operations, and these driver-reports play an important part in this preventive program.

However, due to the manpower shortage, we cannot always keep the same driver on the same unit.

To illustrate how first one driver then another on a unit may cause a costly breakdown, a rod went out on a run between Chicago and Kalamazoo, although the truck apparently was running okay when it left Chicago. The regular driver of this (TURN TO PAGE 94, PLEASE)



Helping Busy Hands Keep Gas and Oil Lines on the Job

IMPERIAL FLEXIBLE FUEL LINES

- ★ Every pair of hands on the service front has a big load to carry these days.
- ★ Imperial Flexible Fuel Lines are built to help busy hands. Fittings are carefully machined to assure speedy, dependable connections and are permanently swaged to hose. Hose itself is rugged, durable; built to withstand vibration, oil, gasoline, vacuum, heat and cold.
- ★ Lines are currently being made in the most needed types and styles to make exact replacements of gasoline and oil lines. While war needs come first, we are doing our best to meet requirements for Imperial Products for automotive repairs.

THE IMPERIAL BRASS MFG. CO.
1209 W. HARRISON AVE., CHICAGO 7, ILL.

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IMPERIAL PRODUCTS ALSO INCLUDE

- BRASS FITTINGS
- TUBE WORKING TOOLS

BATTERY HYDROMETERS

- FUEL STRAINERS
- WELDING OUTPUTS
- BARREL FAUCETS

Soft pressure does it..



...in rebores, too



Reputation is made by performance. The popularity of Hastings Steel-Vent rings comes from their ability to check cylinder wear and stop oil-pumping in every cylinder condition.

The *soft pressure* principle, inherent in Steel-Vent, is one reason why so many have been installed in rebored jobs.

Recommend and install them with confidence in rebored, resleeved or extreme tapered cylinders.

HASTINGS MANUFACTURING COMPANY • HASTINGS, MICHIGAN
Hastings Mfg. of Canada, Ltd., Toronto

IT'S A PRIVILEGE
TO BUY WAR BONDS

U. S. PAT. 2,148,997

HASTINGS STEEL-VENT PISTON RINGS



TOUGH ON OIL-PUMPING GENTLE ON CYLINDER WALLS

BETTER PARTS CUT ROAD FAILURES

(CONTINUED FROM PAGE 92)

unit called his dispatcher and reported the trouble. A relief tractor was sent out. The relief driver thought the bearings were not out of the engine that had been reported by the regular driver and he proceeded to drive it into the shop. This mistake cost us considerable time and expense for, when the vehicle arrived,

all bearings were found defective

We are convinced that keeping within the 35-mile speed limit is helping measurably to preserve our aging trucks and to cut down the number of costly road failures. We had several trucks equipped with governors. The results were so satisfactory that we now have more governors ordered for other units. These have the automatic throttle control for hill climbing, and hold engines to 35 miles per hour on level roads.

Drivers operating units not

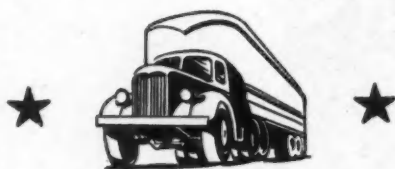
equipped with governors, are instructed to keep within the maximum speed regulations. We have pointed out that they can reach destination, either way, on this schedule and that nothing is gained by faster speed. A driver who stops too long or too often along the route is tempted to make up lost time by speeding, and the result is extra strains on tires, engines and all working parts. We are emphasizing these facts to our men, by pointing to the fact that adherence to slower speeds is materially reducing road failures—and that we have not had one major breakdown on the road during the past month.

Another thing, we tune up tractor engines every 1000 miles. We check ignition and batteries, clean and adjust spark plugs, check and adjust carburetors on the analyzer. We inspect brakes, wheel alignment and spring clips for any mal-adjustments which may cause excessive tire wear.

All trucks come in daily for water, test air pressure, check crankcase oil levels and make whatever minor repairs or adjustments we find necessary. If signs of major trouble show up from these inspections or drivers' reports, such units are scheduled for immediate repairs to get them back on the road promptly.

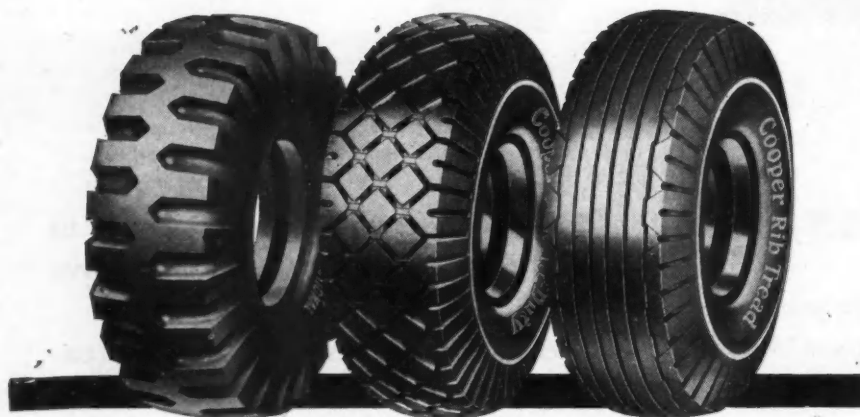
END

(Please resume your reading on P. 53)



faithfully serving at home and abroad

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NON-DIRECTIONAL
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DISTRIBUTED STRESS CONSTRUCTION

TRUCK TIRES

THE COOPER CORPORATION, FINDLAY, OHIO

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Union Carbide & Carbon Corp. has elected the following presidents of subsidiary companies: Dr. Joseph G. Davidson, of Carbide & Carbon Chemicals Corp., and Carbide & Carbide Chemicals, Ltd.; James W. McLaughlin, of the Bakelite Corp.; Stanley B. Kirk, of The Linde Air Products Company, The Prest-O-Lite Co., Inc., Dominion Oxygen Co., Ltd., and Prest-O-Lite Co. of Canada, Ltd.; Arthur V. Wilker, of National Carbon Co., Inc., and Canadian National Carbon Co., Ltd.; Francis P. Gormely, of Electro Metallurgical Co., Electro Metallurgical Co. of Canada, Ltd., Haynes Stellite Co., Michigan Northern Power Co., and Union Carbide Co. of Canada, Ltd.; John D. Swain, of Electro Metallurgical Sales Corp. and John R. Van Fleet, of United States Vanadium Corp.



Young horsepower for old cars

● Another summer, but the same old trucks!
And they must be kept going.

Freshen up those sludge-clogged motors and give them rejuvenated horsepower, with Casite. A Casite tune-up frees sticking valves and rings and prevents the harmful effects of sludge and gum. Casite carries oil to hard-to-reach places,

combats engine varnish, and gives a smoother flow of power. Result: better and smoother performance. Used in the crankcase oil and through the carburetor as directed, Casite brings new life to aging motors and reduces operating costs. Use it summer and winter to help keep your fleet rolling.

THE CASITE CORPORATION • HASTINGS, MICHIGAN

WHAT CASITE DOES:

- It quickly cleans out harmful sludge deposits.
- Retards the formation of engine varnish.
- Frees sticking valves and rings.
- Makes starting easier—even in zero weather.
- Helps oil flow smoothly and constantly to close tolerance areas.
- Gives better and smoother performance.



IT'S A PRIVILEGE... TO BUY WAR BONDS

MUSTS TO GET MORE OUT OF SYNTHETICS

(CONTINUED FROM PAGE 39)

properly at all times, we have found that an average of 10 per cent underinflation can reduce the mileage by as much as 5 per cent. A 50 per cent consistent underinflation can reduce the life of the tire by as much as 75 per cent.

Truck tires, in addition, should be mounted only by properly qualified

tire men, whether in private garages or in each truck operator's employ.

Keeping in mind that improperly-mounted tires can fail prematurely in a number of ways, it is pertinent, too, that tubes can be chafed, pinched, creased, or the valve damaged permanently by improper tire-mounting. Foreign materials dropped in the casings will damage both tubes and tire fabric, while improper seating of the beads will cause the tubes to stretch unevenly and result in failure and damage to the tires.

Another important point in proper truck tire care is periodic inspection of the rims. A rim that is wrong size, damaged, bent or rusted can cause severe damage to the bead area by chafing or cutting. Every rim should be examined and cleaned carefully each time a tire is removed from it. In any event, the rims should be inspected and cleaned every several thousand miles.

One more important point in proper tire care is cross switching, a point stressed frequently to passenger automobile owners and even more important to truck fleet operators. Rotating the tires every several thousand miles—or even less, if the manpower is available for it—can add many thousands of miles to each tire's life expectancy through guaranteeing even wear. At the same time, tires, brakes and wheels should be checked carefully for incipient failures due to all of the ills to which this equipment is subject.

Actual mileage increases of from 20 to 30 per cent have resulted from periodic and systematic cross switching of tires. At the time truck tires are rotated, the spares should be included.

Part of the synthetic rubber, truck tire maintenance picture is proper repair and upkeep of the tires.

In the first place, in this connection, GR-S represents a code marking which has been assigned to the Buna S type of synthetic rubber which is being made under the government rubber program. When GR-S synthetic rubber is compounded to provide proper vulcanization, its physical characteristics closely approach those of natural rubber.

The proportion of synthetic rubber in each truck or heavy-duty tire, by government regulation, decreases in direct ratio to increases in the sizes. The larger sizes are now being made with as much as 65 per cent natural rubber while smaller tires are of 70 to 100 per cent synthetic.

Because of their basic similarity, tires made of either GR-S or natural rubber may be repaired with either natural rubber materials or GR-S materials as they become available.

In repairing an injury to a truck tire which contains synthetic rubber, the injury should be skived out in the same way an injury is trimmed out of a natural rubber tire, being

(TURN TO PAGE 98, PLEASE)

For 32 Years

THE SERVIS RECORDER
HAS BEEN HELPING TO KEEP
AMERICA'S TRUCKS *Busy!*

... And now the job becomes more important than ever, because

Trucks Are Getting Scarce
... and How!

A truck's time is getting to be a precious and an important thing to the country. • **LET NO TRUCK** waste time, not because it costs money, but because it costs war effort. • The Servis Recorder has only one purpose: to help you keep your trucks busy and efficient. Use it ... to help speed Victory.

Write for our free booklet: "Ten Ways of Getting More Work out of Motor Trucks."

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The Servis Recorder
 Tells Every Move Your Truck Makes

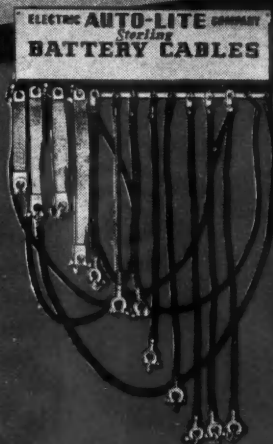
AUTO-LITE

Wire AND Cable

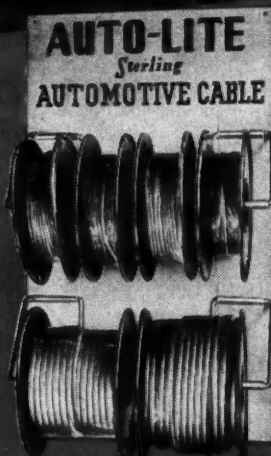
SPOOL WIRE • SPARK PLUG WIRES • BATTERY CABLES
TERMINALS • LOOMS • PORTABLE CORD • ASSORTMENTS



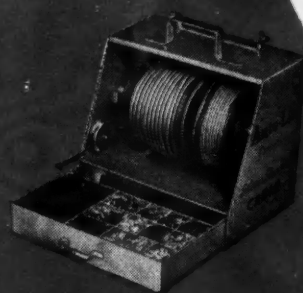
Stainless steel High Tension cable and copper cable



Battery cable assortment



Spool cable assortment



Combination wiring kit



Ground straps and battery cable



Loom in various sizes



Primary wire in various sizes



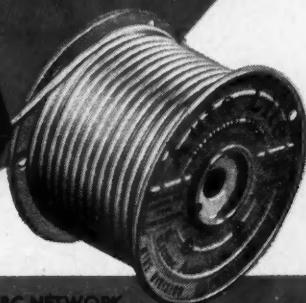
Ignition sets in stainless steel and copper



AUTO-LITE'S complete line of wire and cable includes the exact type you need for every automotive wiring job. Famous for its dependability, it offers you many exclusive features at low cost. See your supplier, or write to

THE ELECTRIC AUTO-LITE COMPANY
TOLEDO, 1 Merchandising Division OHIO

THE COMPLETE LINE



TUNE IN AUTO-LITE'S GREAT RADIO SHOW "EVERYTHING FOR THE BOYS"—EVERY TUESDAY NIGHT—NBC NETWORK

MUSTS TO GET MORE OUT OF SYNTHETICS

(CONTINUED FROM PAGE 96)

sure that all damaged cord and tread are removed. When skiving, all corners should be cut also to a round shape.

The beveled edges of the injury should be buffed through the carcass with a small circular tack rasp for blunt nose rasp) and flexible shaft buffer. The skived surfaces should

be rasped rough. Synthetic rubber heats up faster and is more difficult to rough than natural rubber in buffing. Therefore, to avoid scorching the cavity surface and to avoid poor adhesion of the repair material, the repairman should take more time and use less pressure when rasping the cavity.

Then the repairman should determine the size of reinforcing patch to use, thereafter buffing the inside of the tire with a circular wire brush and flexible shaft buffing machine.

The buffing should be in the same direction as the cords of the inside ply of the tire.

The next step is treating all the buffed surfaces with two coats of vulcanizing cement, with the first coat being stippled into the surface with a short, stiff brush and allowing 30 to 35 minutes for it to dry. The second coat should be applied smoothly over the first coat so no bubbles or globs collect on the surface. The second coat should be allowed to dry thoroughly (about an hour) before building in the repair.

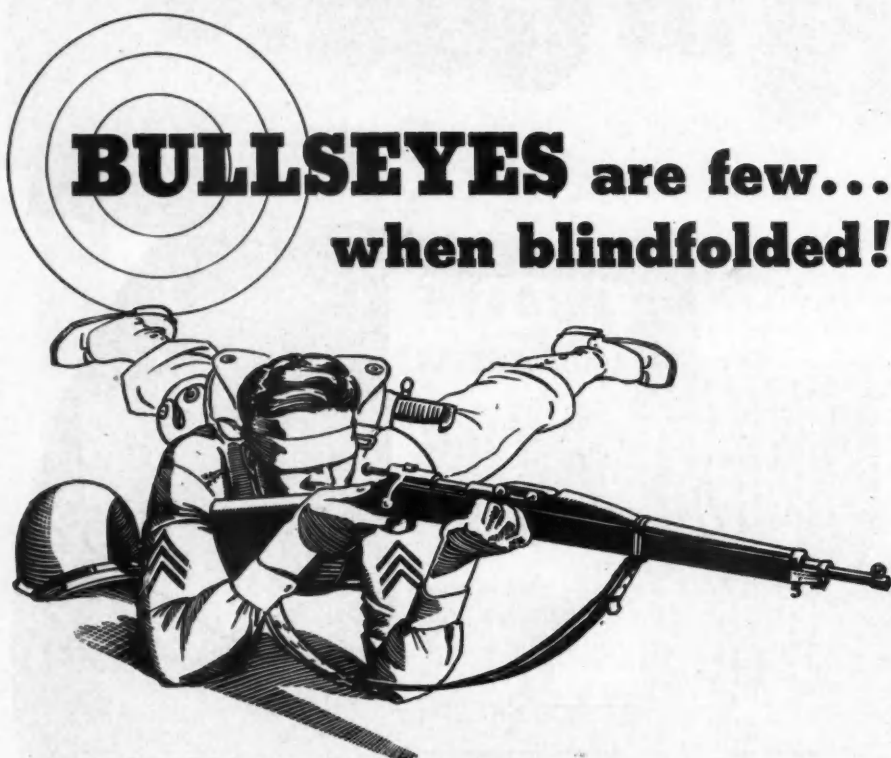
Rayon cord tires, which are customarily used in the trucking industry, should be buffed somewhat lighter on the inside of the tire to avoid removing of the factory-applied sealing coat on the fabric. They also require, immediately after buffing, a coat of sealing cement before application of the vulcanizing cement when the former has dried.

Next a strip of cushion gum is applied to the beveled edges of the carcass injury and stitched tightly into the roughened fabric surface to remove all trapped air, and the carcass cavity is filled with cushion gum with no stretch and continuous stitching. When the cavity has been well filled, the cushion gum plug level should be trimmed flush with the inside ply of the tire. Then a covering of cushion gum large enough to extend at least an inch beyond all edges of the injury is applied over the inside plug.

The next step is application of an inside reinforcement fabric either in the form of a ready built or built-in patch, with the size of the patches or fabric plies depending on the type tire being repaired. However, the patch size and number of plies should conform to standard practice for each size of truck tire.

Before starting the outside build-up work, the truck tire repairman should apply a strip of cushion gum to the beveled edge of the tread injury, extending to the outer surface of the tread and stitched tightly into the buffed surface. Then the tread cavity is filled with tread repair gum, again stitched and packed thoroughly into the injury, and tripped slightly higher than the tread surface.

The last step is curing the tire in accordance with the manufacturer's (TURN TO PAGE 100, PLEASE)



VISCO-METER* is the one device that tells just what the lubricating oil is doing at all times when an internal combustion engine is running. All other methods are guesswork in varying degrees... similar to a gunner trying for Bullseyes while blindfolded. VISCO-METER* shows when oil has "outworn" its usefulness and is too thin to protect against friction. It tells when to drain the crankcase and fill with fresh lubricant or build up a safe viscosity by adding heavier oil. By following this

procedure, the engine gets every minute of wear safely out of every quart of oil. Oil waste is minimized. Lubrication failures are safeguarded. It is one effective method of prolonging the life of essential internal combustion engine parts.

You can't afford to miss the complete VISCO-METER* story. If you are interested in the manufacture, engineering, designing, marketing or use of internal combustion engines, write us today!

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GROTE ST., BUFFALO 7, N. Y.

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GEMMER STEERING GEARS

Simple Design—extreme sturdiness—use of anti-friction bearings at all critical points—make adjustments and servicing almost non-existent in Gemmer Steering Gears.

The life of the Gear is the life of the vehicle—steering is easy—remains easy.

Additional outstanding features of Gemmer Steering are:

Gear Teeth That Roll—No sliding contacts between gear teeth. The hourglass worm bears on teeth that roll, providing highest efficiency—smooth easy transfer of power.

Stability—Inherent design banishes "lost motion" and reduces wear to the least possible minimum. Steering is always firm, responsive, positive, with absence of rubbery feeling or wander.

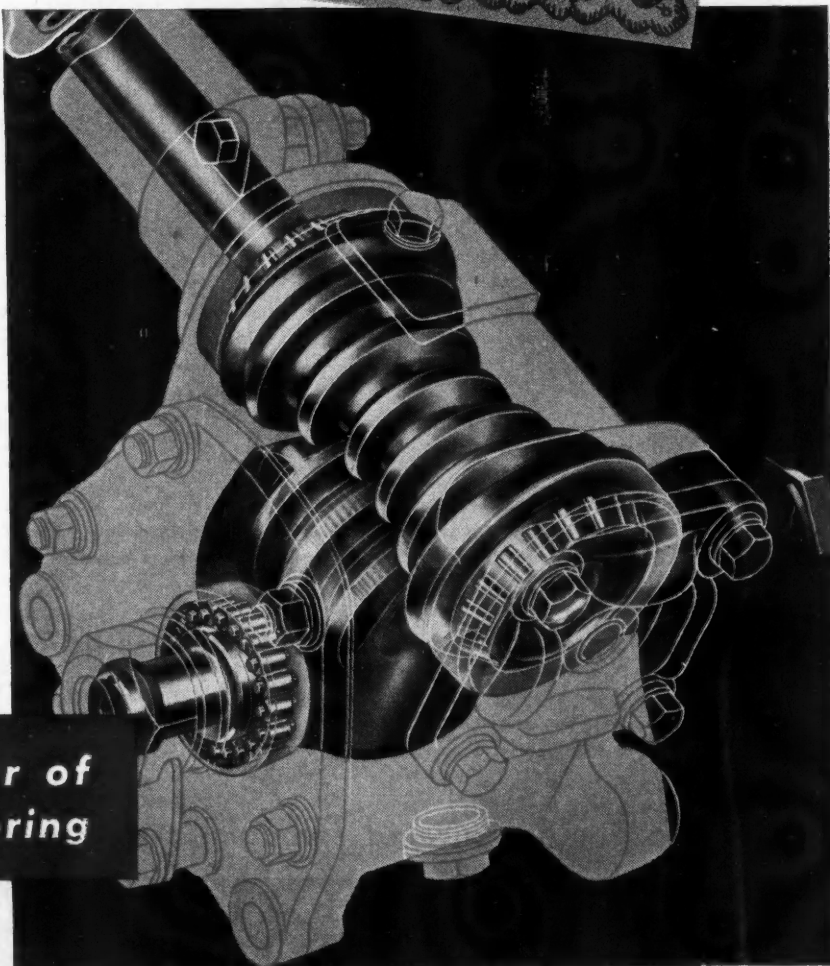
Gemmer Steering has demonstrated its worth in all types of peacetime and wartime automotive vehicles from lightest passenger cars to heaviest buses, trucks, roadbuilding machinery, agricultural tractors—is doing an equally satisfactory job on a wide variety of vehicles and small boats for our armed forces.

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**GEMMER . . . Pioneer of
High Efficiency Steering**

Adjustment
AND
Servicing

**ALMOST
NON-EXISTENT**



MUSTS TO GET MORE OUT OF SYNTHETICS

(CONTINUED FROM PAGE 98)

recommendation for each size of truck tires, avoiding any increase in mold temperatures or removing the tires prematurely from the molds. Truck operators and their tire repairmen will obtain the best results in tire repair by observing the recommendations on the three factors necessary for successful vulcaniza-

tion, Time, Temperature, and Pressure.

If not properly repaired and reinforced, constant stretching or flexing of cuts and breaks in synthetic rubber, truck tires also can cause the injury to enlarge.

While the development of synthetic rubber construction tires has not yet progressed to the point where they will produce the same ultimate service as pre-war natural rubber tires would give, yet careful use and proper maintenance will do much

toward a creditable showing of today's synthetic rubber tire.

END

(Please resume your reading on P. 40)

CONTROLLING STRAINS IN BRONZE WELDING

(CONTINUED FROM PAGE 56)

which means that this part must stand this additional abuse.

Many ways have been tried in repairing this part. To preheat and weld it in the fire does not meet the requirements.

Having given a new lease of life to several hundred of these housings, which have stood up better under the abuse of not replacing worn cushions than have new unwelded parts, a step-by-step description may be of value to others faced with a similar problem.

About all we can do in this case is weld the cracks and slightly reinforce the weak area. Reinforcing, in this case, only transfers the weakness to its next point of least resistance. After many months in service, although some last for years, they come back, broken again through the starter unit opening; only, most of the time, the strain has been transferred outside of the original broken area entirely to either the top or the bottom of the housing.

Keeping in mind the results of our experiments in the previous articles, we want to maintain the original diameters, if possible. Even though we are using a low temperature, we shall, and always will, get some distortion. But it is a minimum of distortion, compared with preheating and welding in the fire. It can be, and is, faced off by the machinist to its original surfaces.

The preparation of the job consists, first, in drilling an oversize hole through the cracked sections. Next, the metal on outside of each hole is melted away.

Then, the narrow bridge of metal between the starter unit opening and the larger inside opening is melted away—about one-third the way through. The opposite side of this starter unit opening is similarly prepared; melting away about one-third of the surface, as shown by the en-

(TURN TO PAGE 102, PLEASE)



always give long and satisfactory service, but they will serve you even better if you will observe a few simple rules of HANDLING and MAINTENANCE.

Keep Bearings Clean

For example, when you first receive your bearings, do not remove them from container until ready to use. Keep hands, tools, shafts, assembly benches, etc., clean. Do not remove the grease in which the bearing is packed. Keep grease cans covered, and wipe off lubrication fittings before lubricating bearings. Do not leave bearings exposed.

Assemble Accurately

Check shafts and housings for accuracy of size and finish. Start races on shafts and in housings squarely. Use an arbor press or hammer and tool to mount races; never strike the races directly with a hammer.

Lubricate and Inspect Frequently

A properly running anti-friction bearing requires regular lubrication. Lubricate your bearings at periodic intervals, and whenever possible give them a thorough inspection.

R B C Distributors Located Throughout the Country

ROLLER BEARING CO. of AMERICA
TRENTON NEW JERSEY

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BRAKE LINING

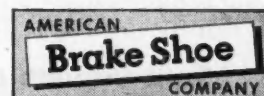


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DETROIT 9, MICHIGAN

Division of



Master stocks in 38 NAPA warehouses. Jobbers everywhere give prompt service.

CONTROLLING STRAINS IN BRONZE WELDING

(CONTINUED FROM PAGE 100)

larged view in Fig. 4. By leaving one-third of the original wall untouched, we provide a strong resistance to the contracting bronze above and below it, and draw the crack closed to its original size when heating for the low-temperature, bronze weld.

The crack on the opposite side of the housing, which runs through to

the hanger bracket, is left untouched. After steel grit blasting the job inside and out, using a number five welding head and 1/4-in. bronze rod, the long crack on the right side of the housing is welded; first on the inside, then turned over and, again starting from the hanger bracket end, on the outside. The unchipped wall, here, acts the same as the unchipped one-third of the wall on the opposite side. It holds the piece to its original measurement. The bronze, with its bull dog grip, pulls it shut and

holds it there. The inside and outside welds balance, or equalize, the strain set up by its opposite on the other side.

Looking again at the enlarged view of the starter unit opening, Fig. 4, the crack has been pulled open almost a 1/16 in. by the small amount of heat used in making our weld on the opposite side. We take advantage of that opening, and make our second weld at this point while it is in the expanded condition. Almost as soon as we put the torch to this area, this crack closes, butting the unchipped one-third together after the weld has been made. Here, both inside and outside, a small amount of reinforcement is made around the outer edge of the starter unit opening, as well as around each of the outer edges of the bolt holes, which were enlarged before we started the job.

The welds, both inside and outside, are about 1/8 in. high and two in. wide, except at the points faced off. New bolt holes have been drilled through solid bronze. Fig. 5 shows two views of the completed job; ready to return to service, except for a small amount of excess bronze which will be removed by the mechanic, or it will interfere with the crank case.

Had this crack been chipped out, or a 90 deg., single or double bevel "V" made, more room would have been provided for the bronze to contract. And on jobs that have been prepared in this way, these bell housings have failed; just through the strain set up by the contracting bronze. Leaving the walls unchipped, or only partly chipped, distributes this strain over the surface of the unchipped area, and the bronze, even though under a tensional strain, stays put.

Radiator Repair

The ease and speed, coupled with the time-tested reliability, of a bronze-welded repair on cast iron parts places it in a position where its only competition is the replacement of the broken part with a new piece.

An interesting repair job is shown in Fig. 6. This is the bottom tank of a heavy duty, tractor radiator, heavy enough for two men to lift. It certainly was not a very encouraging

(TURN TO PAGE 105, PLEASE)



The Spotlight falls on **HERBRAND**

**-- manufacturers of
quality drop-forged tools since 1881**

In searching for a manufacturer of quality tools, the spotlight invariably falls on Herbrand. For more than 62 years, Herbrand's continuous progress in research, engineering and development is reflected in the superior quality of these tools.

If you are unable to get immediate delivery on certain numbers in our complete line—please understand that war needs come first, and that Herbrand Quality Tools are worth waiting for.

Sold through better jobbers everywhere

THE HERBRAND CORPORATION • Fremont, Ohio
Drop-Forged Tools Since 1881

CONTROLLING STRAINS IN BRONZE WELDING

(CONTINUED FROM PAGE 102)

looking job, with that large hole and the pieces missing. But large or small, thick or thin, for strength or water tightness, the best bet is bronze and the torch.

We started this job by using the air chipping hammer and squaring the hole somewhat. Then with a paper templet, or pattern, we cut a piece of steel plate to make a neat, close-fitting patch, grinding off the slag left by the burning torch and then grinding it to fit. After tack-welding it in place, as shown in Fig. 7, the usual steel grit blasting was given the piece, inside and out.

We selected a No. 3 welding tip, and $\frac{1}{8}$ -in. bronze rod. The heat was confined to the narrow area to be covered by the bronze weld metal, and a weld was made without stopping from the start to the finish. The weld was about one-half to three-quarters of an inch in width, and not over $\frac{3}{32}$ in., or $\frac{1}{8}$ in., in height.

Turning the part over, and without being particular where we started, the water sealing and contracting weld metal strain, was equalized with an inside weld of similar measurements. On a test for leaks it tested tight.

If a leak had showed up, we could have remelted the bronze in the leaking area, or peened it, or melted a sulphur-graphite stick over the leak. No peening was done, either for stress relief or to seal pin holes.

The welder must remember to keep the heat from spreading outside the weld line, and keep it just hot enough to tin flow and spread the bronze on the base metal. A higher heat will

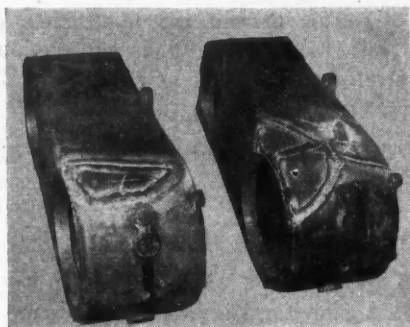


Fig. 10

skimming the surface of the bronze—

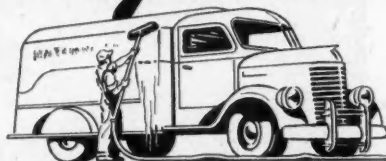
and the pin holes or blow holes closed. After the knack of making this surface heat, low-temperature, non-preheated weld is acquired, pin holes will be the exception rather than the rule, except on base metal that has not been properly cleaned.

The same procedure was followed on the job shown in Figs. 9 and 10: Steel grit blasting; no preheating; surface heat confined to the narrow width of the bronze; $\frac{1}{8}$ -in. rod, for quick melting and spreading, and for

(TURN TO PAGE 106, PLEASE)

SPEED WASH FOUNTAIN BRUSH

*Cuts Washing Time
in Half*



Washing trucks and trailers with Speed Wash gets amazing results with little effort and great speed. Clean, fresh water feeds right through the handle and tufts, so that each 12 inch stroke does a complete job of soaking, scrubbing and rinsing. There's no waste motion changing tools and back-tracking over the same surface. You can see how this easily cuts washing work and time in half, does a better job, and also saves the finish.

FULLY GUARANTEED

Put Speed Wash to work on your trucks. If it doesn't measure up to your expectations, return it for a full refund of your money. Order on this liberal basis today. Extend your priority of AA-5 or better, to insure prompt shipment. Make out your check or money order to Milwaukee Dustless Brush Co.

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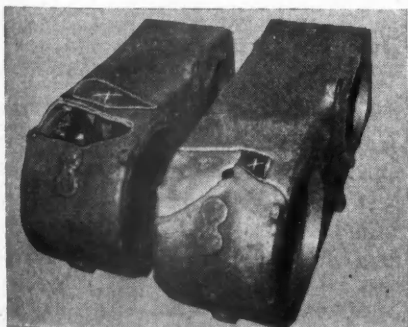


Fig. 9

give blow holes. However, even this can be gone over, remelted—just

CONTROLLING STRAINS IN BRONZE WELDING

(CONTINUED FROM PAGE 105)

better control of the height of the weld; inside and outside welds.

In conclusion, this should be remembered: Inasmuch as a bronze weld is three times as strong, or almost equal to a mild steel weld in strength, then the least amount of bronze that will do the job is enough. The amount of bronze should be kept

down to just fill the requirements. This will reduce the contraction strains and possible new cracks.

END

(Please resume your reading on P. 57)

Col. Rockwell Has Plan to Provide Post-War Benefits

A plan for withholding a percentage of present war production profits for the post-war benefit of returning veterans and unemployed war work-

ers, has been devised by Col. Willard F. Rockwell, Pittsburgh and Detroit industrialist, who is chairman of the boards of the Timken-Detroit Axle Co. and the Standard Steel Spring Co. Col. Rockwell, whose companies have produced more than \$500,000,000 worth of war goods since Pearl Harbor, has petitioned President Roosevelt and Congress for permission to institute this post-war plan in his own companies.

In essence, the "Rockwell plan" provides that war producers shall be permitted to withhold from profits, after taxes and dividend or interest requirements, but before renegotiation, sums ranging up to one week's average wages or salary for each month an employee has worked in a war plant, with a maximum withholding of 24 weeks' wages for each employee who has worked a minimum of two years.

A similar provision is included for all members of the armed services who left gainful employment in factories now engaged in war work.

These funds are to be disbursed if and when contract terminations and reconversions result in substantial unemployment, and until such time as the participating plants can re-employ their workers or the dismissed employees shall have found other work.

The entire plan would be under the supervision of the Social Security Board, with all unpaid balances remaining in these reserves two years after final settlement of terminated war contracts, to be returned to the government in the form of windfall taxes. Companies operating under this plan, it is envisioned, would have the use of unexpended reserves for reconversion purposes until the balances were due the Treasury.

Herman Zarnikau Dies

Herman Zarnikau, 53, regional field service representative of the Timken-Detroit Axle Co. in California, Arizona and New Mexico for the past several years, passed away June 1 in Los Angeles after a 10-day illness of bronchial pneumonia. A veteran of 25 years in Timken service work, Zarnikau was well known by truck operators, distributors and dealers throughout the southwest. His home was in Beverly Hills, where he is survived by the widow and a 16-year-old son.



BEAR HEAVY DUTY *Combination* **Frame Straighteners and Wheel Aliners**

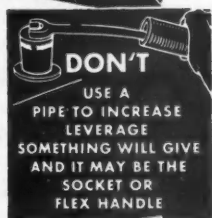
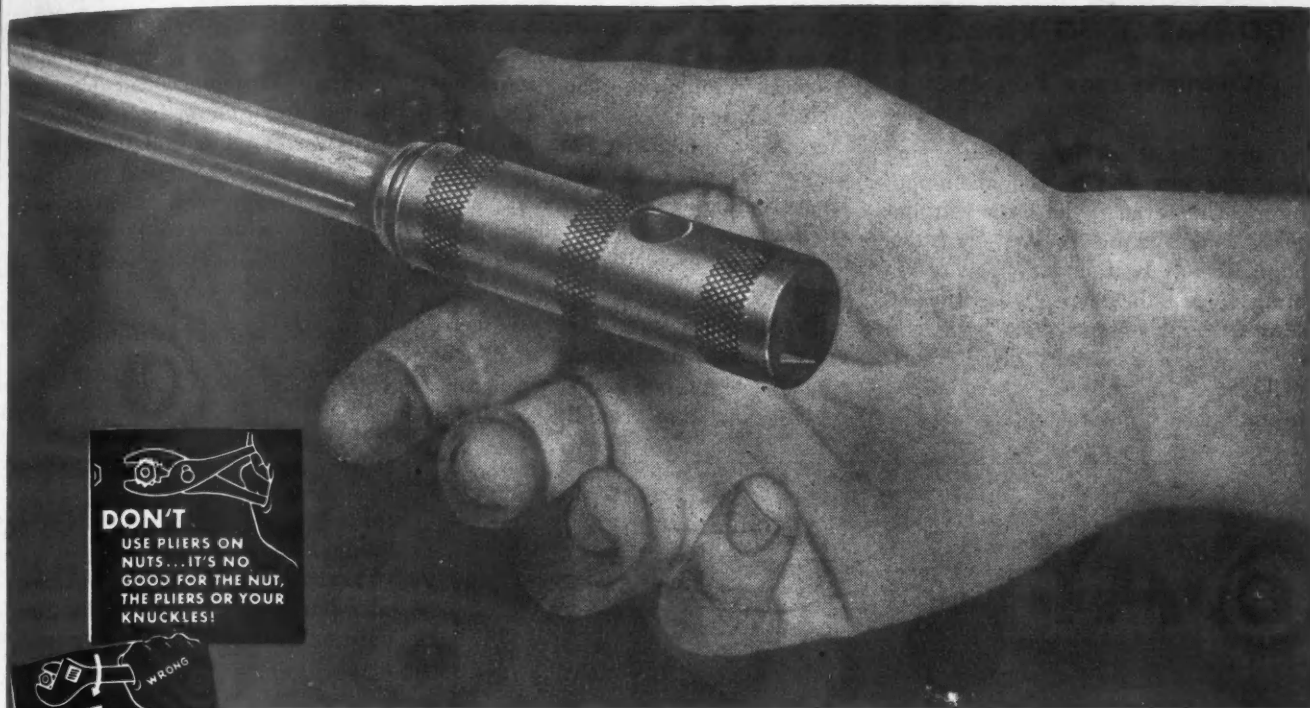
Never before has there been so great a need for Bear Frame Straightening and Wheel Alining! You help your country and yourself when you are equipped to perform this service! In recognition of the need, the War Production Board has amended its L-270 order to make it possible for you to secure this vitally

needed equipment. ACT NOW to be SURE YOU GET BEAR... the equipment that saves time on every job and insures perfect work! Bear Manufacturing Co., Dept. CCJ, Rock Island, Illinois

New L-270
makes MORE
BEAR EQUIPMENT
AVAILABLE

See Your Bear Jobber
or write us!
KEEP AMERICA ROLLING!

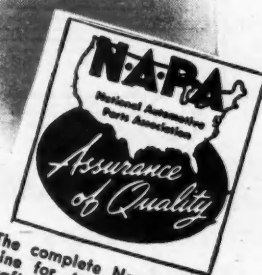
HEART of Tire and Car Conservation is
BEAR
Wheel Alinement...Balancing...Frame Straightening



MECHANIZED WARS ARE NOT WON BY EMPTY HANDED MECHANICS

America's mechanized fighters have the finest equipment American genius can produce. BUT . . . it takes Tools—good Tools—to keep this incomparable equipment tuned up and ready to go! Thus, a steady stream of New Britain Hand Tools goes to our men overseas and *nothing* will interrupt this flow except Victory. So, the Tool situation here at home simply packs into this—we've all got to make present Hand Tools in every service station, shop and garage go further and do more.

The Tools in your present kit are no longer merely the property of you men who own and use them in vital services at home. Now they constitute a national asset. Think of that stubborn fact the next time you are tempted to save a moment and perhaps ruin a Tool trying to make it do a job it was never made to handle. We reiterate — *Use the Right Tool . . . Use It RIGHT . . . Put It Back!* The New Britain Machine Co., New Britain, Conn.



The complete New Britain Line for Automotive, Aircraft, General Maintenance & Production Needs is sold by leading Jobbers.

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The Army-Navy "E" Pennant, with star, flies over New Britain's plants, signalling outstanding production of machine tools, aircraft engine parts and projectiles.

THE NEW BRITAIN MACHINE CO. HAND TOOLS

CONTROLLING KNOCK

(CONTINUED FROM PAGE 41)

advance the spark at a faster rate than was intended by the manufacturer. Thus even if the basic setting should be set at the specified mark or point, it may be found that at operating speeds the spark is advanced several degrees more than is called for in the specifications. This error will cause an unnecessary increase in antiknock requirements.

Basic spark setting should always be set by using a good timing light. A check should be made at some higher engine speed to determine if there are any marked fluctuations in timing being caused by vibrations set up in the automatic advance mechanism by sloppy distributor bushings or excessive back lash in the drive gears.

Spark plugs must receive their proper share of attention. A spark plug that is too hot sometimes causes pre-ignition that rapidly becomes

worse causing blown cylinder head gaskets, loss of power and overheating. If replacement plugs are needed they should be selected with care, bearing in mind the manufacturer's specifications and the type of service encountered. Heavier loads and more wide open throttle operation generally require spark plugs of a "colder" heat range.

Jacket Water Temperature

The effect of jacket water temperature on engine knock varies considerably from engine to engine, but, in any case, hot engines are more prone to knock. For this reason drivers' reports of overheating should be investigated immediately.

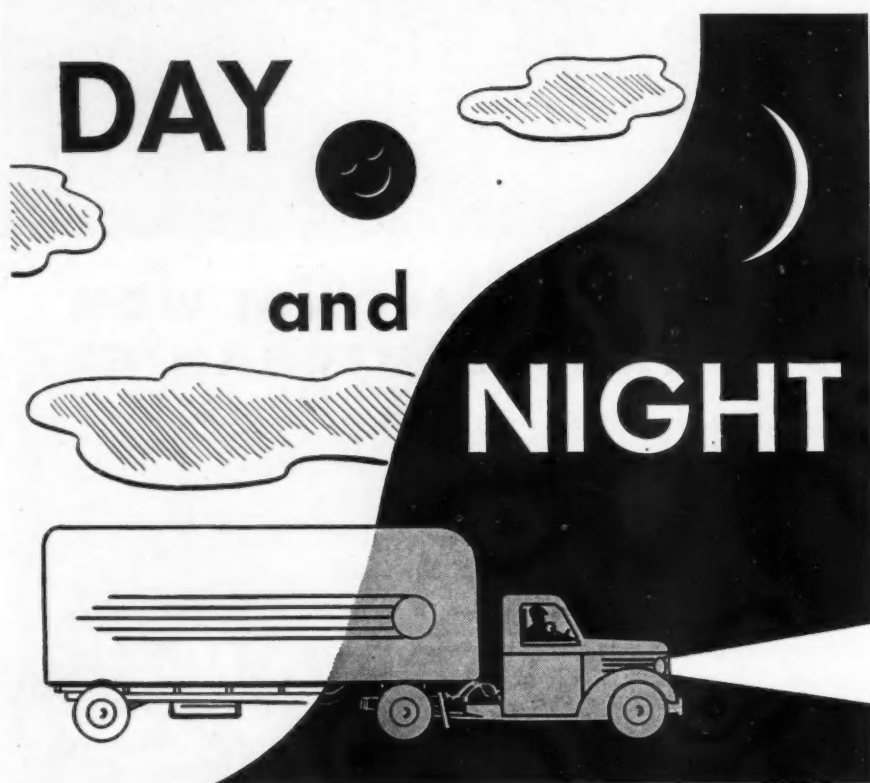
Through proper checking of fans, water pumps, pump drive belts, thermostats and water and air passages in the radiator, adequate heat rejection to the atmosphere can be maintained. Such work does not, however, assure sufficient heat flow from the combustion chamber to the water jacket. Tests have shown that after 25,000 miles of operation antiknock requirements could not be returned to that of a new clean engine, until all scale deposits were removed from the jacket surfaces.

Carburetor Air-Fuel Ratio

The effect of carburetor air-fuel ratio on engine and vehicle performance has been given little consideration in the field in relation to present operating conditions. Most special carburetor adjustments have been made to obtain improved economy and, in general, have resulted in some decrease in power output. If carburetor parts can be obtained it would be best to return to the manufacturer's original specifications. High mixture temperatures in the intake manifold increase engine knocking. For this reason manifold heat controls should be set as much toward the "cold" or "summer" position as is possible in line with satisfactory operation.

Combustion Chamber Deposits

Combustion chamber deposits accumulated during normal engine operation increase antiknock requirements, but the quantity of these deposits is not an accurate indication of this increase. It is not possible to prevent the accumulation of combustion chamber deposits, but by care—
(TURN TO PAGE 110, PLEASE)



... They're Hard At Work

Day and night... night and day... trailers are on the move. Working longer and harder than they ever worked before.

Trailers are helping haul the essentials of a great nation at war. They're moving up behind far-flung battle lines with Army supplies. For this is a war of movement.

At home, or abroad, you'll find trailers by Edwards playing their part in delivering the goods.

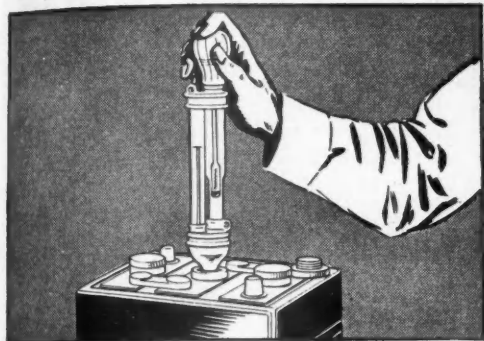
A limited number of Edwards Trailers is available for vital civilian use. They are being built under government allocation without any let-up in the production of military trailers and other war equipment for the Armed Forces.

EDWARDS IRON WORKS, INC. • SOUTH BEND, INDIANA

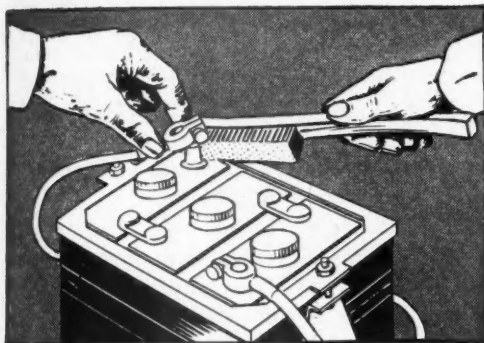
EDWARDS



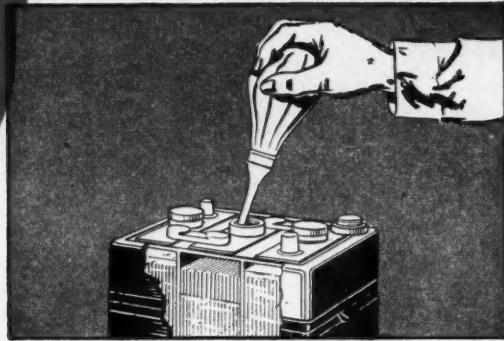
4 Good Questions to Ask About Each Battery



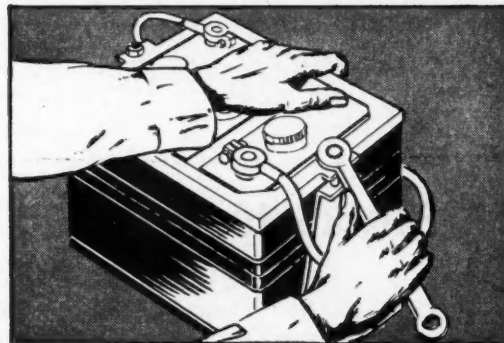
HOW IS THE CHARGE?



ARE THE TERMINALS CLEAN?



DOES IT NEED WATER?



IS BATTERY TIGHT IN CARRIER?



BBATTERY life must be lengthened. New batteries are scarce. The demands of war are great. And truck transportation is essential. The only answer is proper battery care.

So ask the above questions regularly about the batteries in your trucks. Then give your batteries the necessary care. You'll add months to their life.

When long life and hard service finally exact their toll, replace with Globe Spinning Power, the battery that's especially built for a battery's hardest job — wartime replacement service.

Send for new and revised Battery Manual. Address nearest factory.

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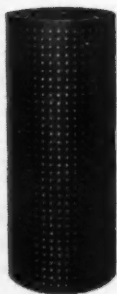
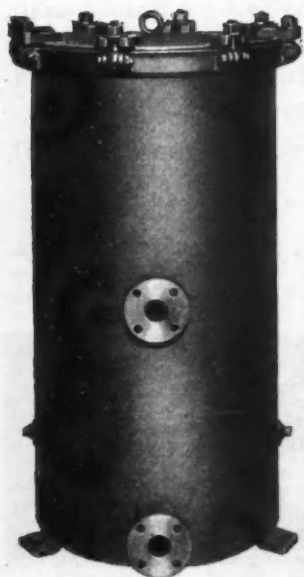
Photo courtesy of Harris-Ewing Co.

SAFEGUARDING THE ENGINES OF THE LST's

Nothing is more disastrous than engine trouble on invasion craft. Hence the strictness of military authorities in engine specification and design—and in the filters built to keep dirt and other abrasives out of the lubrication systems.

Cooperating with engine builders and adhering to rigid specifications, MICHIANA has applied its many years of experience to the task of supplying the Oil Filters required to meet War demands. All over the world, MICHIANA Oil Filters and spare replacement Filter Elements are protecting the engines of military ships and equipment, to provide longer and more satisfactory service... They are made for use with Diesel and gasoline engines of all capacities.

The illustrations show new Navy Specification MICHIANA Oil Filter and one of the identical Filter Elements used singly and in sets of 2, 3, 4, 6 and 8. These filters are made in capacities from 100 HP. to 2000 HP. MICHIANA PRODUCTS CORPORATION, Michigan City, Indiana.



Write for
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44-D

MICHIANA OIL FILTERS

CONTROLLING KNOCK

(CONTINUED FROM PAGE 108)

ful attention to air cleaners, intake valve guide clearances, and the venting of crankcase fumes through breathers connected to the intake manifold or carburetor, these deposits can be held to a minimum.

Experience has shown that, where trouble exists, careful attention to the above items often will assure satisfactory operation on present-day fuels, but in some cases the loss in performance due to retarded spark is still excessive and other means must be found to raise the performance to a satisfactory level. The two alternatives are, first, the use of premium fuels or a blend of regular and premium fuels and, second, reduction of the compression ratio of the critical engines. Reduction of compression ratio is always accompanied by losses in power and economy, and should not be considered until all other methods have failed to produce satisfactory results.

Excessive knock can cause expensive repairs and loss of operating time of much needed vehicles. Burned pistons, blown cylinder head gaskets, and a high rate of wear of piston rings and cylinder barrels are among the usual results of improper attention to the refinements of engine tune-up. The safety factor is no longer built in the fuel; it is now in the hands of an adequately trained and supervised shop force.

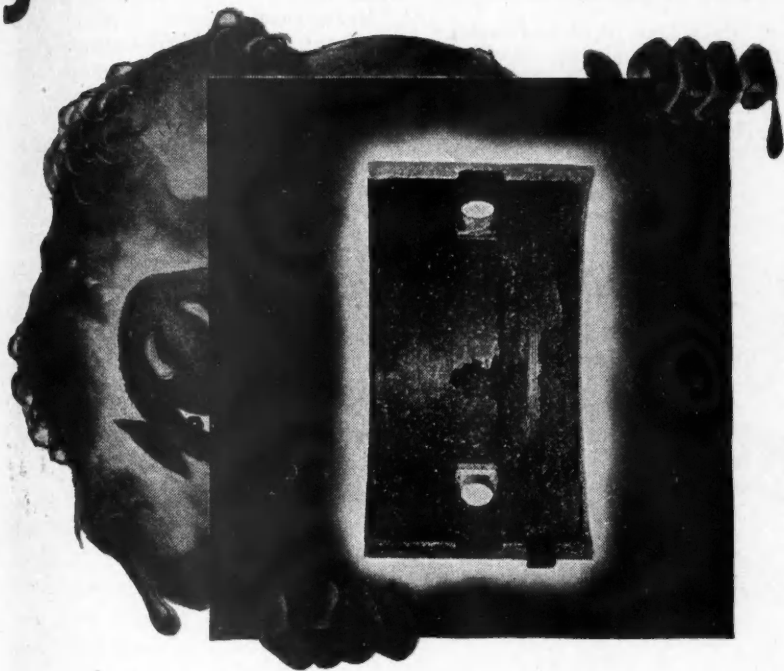
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(Please resume your reading on P. 42)



Here is Ralph Robey, who has the outstanding record of driving a million miles without a single accident. Ralph Rice, at left, director of safety, All States Freight, Inc., presents Robey with a handsome trophy and a war bond for the achievement. In the background is the White truck and Fruehauf stainless steel trailer, owned and operated by Mr. Robey.

your enemies—



CORROSION

This is corrosion at work. It attacks bearings, weakens and destroys them.

Veedol 90 Heavy Duty is a *corrosive-resistant oil*. It protects copper-lead bearings from the corrosive attacks of compounds that result from oxidation.

Veedol 90 Heavy Duty goes even beyond these helps

Veedol 90-Heavy Duty permits *easier starting* and faster distribution of the lubricant through the engine under cold starting conditions. *Lowers oil consumption* under ALL conditions, particularly when operating at high speed and hot oil temperatures.

Moreover, Veedol 90 Heavy Duty has all the natural advantages of being made from 100% Pennsylvania crude—

one of the most effective wear-fighters that Science has ever found.

Veedol 90 Heavy Duty is available in S. A. E. 10, 20, 30, 40 and 50. Many prominent fleets are using it to offset today's problems. You can use it to excellent advantage . . . Tell us your needs today.

TIDE WATER ASSOCIATED OIL COMPANY
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The Famous Veedol P. M. Plan is waiting for you, too!

The Veedol Preventive Maintenance Plan is doing a whale of a job for over 800 hard-working fleets. It can help yours. The plan can be tailored to fit any number

of units — and costs only 18¢ per truck. Write today for a Tide Water representative to call and go over this *proven* lifeguard for rolling equipment.



VEEDOL

OILS AND GREASES



GASOLINE POWERS THE ATTACK—DON'T WASTE A DROP! • BUY MORE WAR BONDS

ODT, OPA & WPB NEWS

ODT Merger Establishes Highway Transport Department

The ODT has established, effective June 1, a Highway Transport Department through consolidation of the Divisions of Motor Transport and Local Transport.

The department, under the direc-

tion of Guy A. Richardson, assistant director of the ODT, will consist of five divisions, as follows:

Property Operations Division—Director, Harold C. Arnot; section chiefs—For-Hire Carriers, Ellis T. Longnecker; Private Carriers, A. Henry Walter; Farm Vehicles, Robert A. Hicks; Traffic and Vehicle Registration, John R. Scott.

Passenger Operations Division—Director, Edward A. Roberts; section chiefs—Transit, W. H. Ahearn; Intercity Bus, Charles F. Warden; School Bus, C. D. Hutchins; Taxicab, C. B. Caldwell.

Equipment and Research Division—Director, W. S. Rainville, Jr.; section chiefs—Allocation, Matthew E. Kane; Maintenance, William J. Cumming; Program, Marc Haas.

Management Division—Director, Ernst Jacobson; section chiefs—Contract Clearance, W. E. Van Vactor; Inventory Statistics, James O. Riley; Administrative, Albert B. Rosenbaum.

Regional Division—Director, Thomas H. Nicholl; assistant director, Alvin S. McEvoy; regional directors—New York, P. N. Simmons; Philadelphia, Melvin R. Greene; Atlanta, John G. Caley; Cleveland, Robert D. Thomas; Chicago, Harry L. Gormley; Kansas City, R. C. Coleman; Dallas, E. P. McCallum, Jr.; Denver, Asa J. Merrill; San Francisco, Robert O. Crowe.

ODT Authorized to Review Disapproved Deferments

State Selective Service denials of draft deferment requests for transportation employees in the 18-25 age bracket will be given additional review under a plan announced by the ODT.

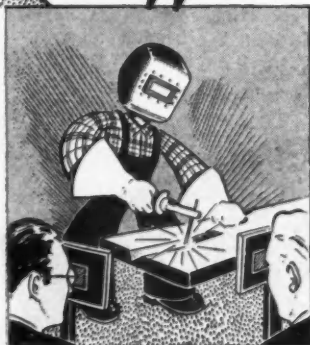
With the cooperation of National Selective Service Headquarters, all 42-A Special forms countersigned by ODT state representatives which are not approved by State Selective Service directors will be turned over to regional officers of the ODT's Division of Transport Personnel for screening. Cases found worthy of further consideration will be submitted by the ODT to National Selective Service Headquarters for appropriate action.

Operators Urged to Place Orders for Component Units

The ODT urges bus and truck operators throughout the country to anticipate the need for replacing worn-out engines and to place orders with their dealers several months in advance in order to insure an adequate supply.

W. J. Cumming, chief of the Maintenance Section of the ODT's Highway Transport Department, explained that if vehicle operators desire immediate engine replacements when needed, they must build up the demand.

"There has been some misunderstanding concerning the exchange and rebuilding of worn-out engines (TURN TO PAGE 116, PLEASE)



- SALVAGE CRACKED ENGINE BLOCKS AND CYLINDER HEADS
- CUT TIME AND COST OF BODY AND CHASSIS REPAIRS
- MAKE FASTER AUTOMOTIVE REPAIRS without costly, hard-to-get replacement parts.
- SAVE CRITICAL WAR MATERIALS

There is a member of Marquette's countrywide staff of welding experts near you. He has the "know how" and with it he will bring you the latest, up-to-the-minute developments and applications of welding for faster and cheaper car and truck maintenance and repair.

You assume no obligation in having a demonstration . . . in your own shop, on your own work . . . of how, with a Marquette, you can really capitalize on the amazing money and time saving possibilities of this modern equipment.

LOW INITIAL COST — NEGLIGIBLE UPKEEP
LOW COST OPERATION — FAST, FLAWLESS WELDS

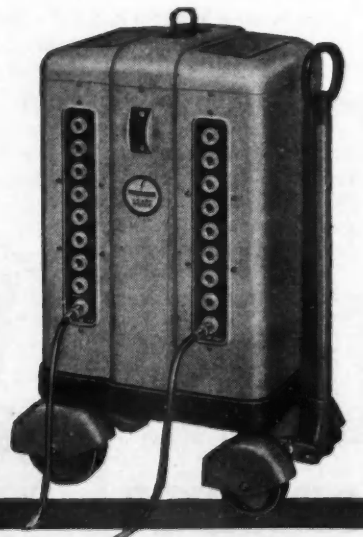
Send for free, 24 page, illustrated booklet

MARQUETTE MFG. CO., INC.

Minneapolis 14, Minn.

MARQUETTE
REGISTERED U.S. PAT. OFFICE

a.c. arc welders



Clutch repair and adjustment with Monmouth Clutch Rebuilder, Clutch Plates and Parts is an important service rendered by Brittain Bros., N. A. P. A. Warehouse, Oklahoma City, Okla.

Old Clutches made New



with Speed, Profit and Customer Satisfaction

MORE than 10,000 auto repairmen have learned how to make old clutches like new by following the Monmouth Clutch Specialist Program.

This plan requires only 3 steps in order that you make more profit, get quick service and build a waiting list of customers who regard you as tops in clutch repair and adjustment.

These steps are:

First—Use the Monmouth Clutch Reconditioner—a precision machine tool with which clutches are quickly restored to new condition.

Second—Use genuine Monmouth Clutch Plates and Parts—stocked by all N.A.P.A. jobbers.

Third—Ask us to put you on the list of Clutch Specialist Manual owners. Prepared by Clutch Engineers, it gives easily followed directions for the detection, correction and repair of all clutch troubles.

You can turn out perfect clutch jobs quickly at low cost, and at a good profit by adopting this program now. Ask your N. A. P. A. jobber to start you in, or write us direct.

MONMOUTH PRODUCTS COMPANY • Cleveland, Ohio



*Your
NAPA Jobber
is a Good Man
to Know!*

**For Engine Bearings
Clutch Plates and Parts
King Bolt Sets**

Monmouth name

ODT, OPA, WPB NEWS

(CONTINUED FROM PAGE 114)

under the ODT's rehabilitation plan," Mr. Cumming said. "Some operators are disappointed at not being able to obtain rebuilt exchange engine replacements on demand because dealers do not have an adequate supply on hand.

"This situation can be remedied if operators realize the necessity for the dealers, the engine rebuilders, and the

parts manufacturers to plan ahead. The existence of demands for specific makes and models of their units can only be proved by actual anticipatory orders placed by the vehicle owner. In this way the supply of essential replacement parts can be started flowing to the truck owner."

"Cancel Conventions"—ODT

The immediate cancellation of all non-war connected conventions, trade meetings and conferences as well as

all non-essential civilian travel was demanded on June 7 by ODT Director J. Monroe Johnson.

Col. Johnson announced that he is asking the chairmen of both House and Senate Appropriation Committees as well as the Bureau of the Budget to take firm measures to insure the immediate curtailment of governmental travel, particularly in connection with conventions and other trade meetings.

ODT Officials Marooned

Col. J. Monroe Johnson, director of the Office of Defense Transportation, and other ODT officials are discontinuing public appearances or addresses at conventions or similar gatherings that involve use of transportation facilities. The policy will remain in effect until passenger transportation conditions are improved. With the invasion under way demands on transportation facilities are increasing instead of decreasing.

Transportation Training Bulletin Made Available

Noting that securing and retaining an adequate working force continues to be of primary concern to transportation employers, the ODT has announced issuance of a new training information bulletin to help transportation company officials with these wartime problems.

The bulletin, "Transportation Training," second of a series, describes more in detail the Federal war training agencies and the services they can render. In addition, it presents actual examples of training programs in operation, information on recruitment and selection of workers, and preparation of instructional analyses for training purposes.

A preface states that there is little likelihood that the employment conditions in the transportation industry will abate in the near future and that they may even become more acute in some instances.

Copies may be procured by writing to the Division of Transport Personnel, Office of Defense Transportation, Washington 25, D. C.

Special Training Classes

The ODT informs automotive repair shop owners that vocational training schools will conduct special
(TURN TO PAGE 118, PLEASE)



Blood Brothers UNIVERSAL JOINTS

You get reliable performance and long life when you specify Blood Brothers Universal Joints. All types for all purposes—engineered for smooth, efficient performance with many special features that make Blood Brothers Joints preferred among fleet operators.

Whatever your needs in joints our engineering department will gladly submit quotation.

Backed by over 30 years' factory and field experience

BLOOD BROTHERS MACHINE COMPANY

Division of Standard Steel Spring Company

ALLEGAN, MICHIGAN

SPECIFY *Blood Brothers*
UNIVERSAL JOINTS
FOR RELIABILITY AND ENGINEERING EXCELLENCE



Wagner CoMaX

DRILLED SETS

save labor... save drills



WAGNER
Automotive Products Include:
LOCKHEED
HYDRAULIC BRAKE FLUID
LOCKHEED
HYDRAULIC BRAKE PARTS
CoMaX
BRAKE LINING
WAGNER
AIR BRAKES
TACHOGRAPH
(Recording Speedometer)

You'll like the way you can *save labor*, save the wear and tear on drills, and can *save time* by using drilled sets of Wagner CoMaX Brake Lining. . . . Yes, and you'll like the *good coverage* of this popular, proven line of quality lining.

CoMaX is the finest in molded brake lining. It is unsurpassed for quick, safe, smooth stops.

CoMaX is *long-lived*. This means thousands of extra miles before replacement is necessary—and less frequent replacements mean more lining immediately available for war needs.

CoMaX has reinforced backing which permits deep seating of rivets, and extends the period of safe usefulness.

Then, too, CoMaX is non-compressible, uniform in texture, easy on drums, and is age-proof. . . . Available in rolls, sets, blocks and slabs. . . . For details, consult your nearest Wagner jobber, or write us.

B44-7



FOR VICTORY
BUY U. S. WAR BONDS AND STAMPS

Wagner Electric Corporation

ESTABLISHED 1891

6470 Plymouth Avenue, St. Louis 14, Mo., U. S. A.
AUTOMOTIVE AND ELECTRICAL PRODUCTS

ODT, OPA, WPB NEWS

(CONTINUED FROM PAGE 116)

classes in automotive maintenance and repair for particular makes of cars or trucks provided they can furnish at least 10 students. Some shop owners have preferred training their own employes instead of having them trained in groups with employes of dealers who handle other makes of vehicles.

The ODT now has vocational train-

ing classes in 200 cities throughout the country, sponsored by the United States Office of Education and conducted by public vocational schools.

Used-Car Price Ceilings Become Effective July 10

Used-car price ceilings will go into effect July 10, under the terms of OPA Maximum Price Regulation 540. This action is ascribed to a rapid increase in the prices of used cars. Listed prices, according to the

OPA, have risen more than 33 per cent since 1941. Actual sales prices rose more during the last half of 1943 than during the entire preceding year and a half. Many used cars are now selling at prices much higher than they sold for when new.

Beginning on July 10, specific dollars-and-cents prices will go into effect on 23 makes and about 6000 models of passenger automobiles manufactured from 1937 through 1942. Cars older than 1937 models may not sell at higher prices than those established for the nearest comparable 1937 models. These legal ceilings apply both to sales between individuals and to sales to or by dealers.

The ceilings have been set at levels on which used cars were being sold in January, 1944. Each model will have an "as is" and a "warranty" price. All individuals and others who do not maintain repair services must sell at or below the "as is" price. Dealers may sell at either the "as is" or "warranty" prices. A dealer is defined as a car seller who maintains normal automobile repair service and facilities.

When dealers sell at "warranty" prices they must furnish each buyer with a written guarantee that the car is in good operating condition and will remain so for 30 days or 1000 miles, whichever occurs first. For this "warranty" 25 per cent of the "as is" ceiling price or \$100, whichever is higher, may be added.

Dealers and individuals are permitted to add certain authorized amounts for accessories and built-in equipment.

Automobile dealers, OPA Regional and District Offices and Local War Price and Rationing Boards will have official price lists for buyers to see.

18,039 Trucks for Civilians in First Four Months

Total production of motor trucks and truck tractors for the first four months of 1944 amounted to 228,347, an increase of approximately 9 per cent over the 208,679 produced in the same period of 1943, according to the WPB Automotive Division. This increased production provided 18,039 vehicles for essential civilian use, a substantial increase over the

(TURN TO PAGE 120, PLEASE)



AMMCO
BRAKE HONE
for all hydraulic brake cylinders



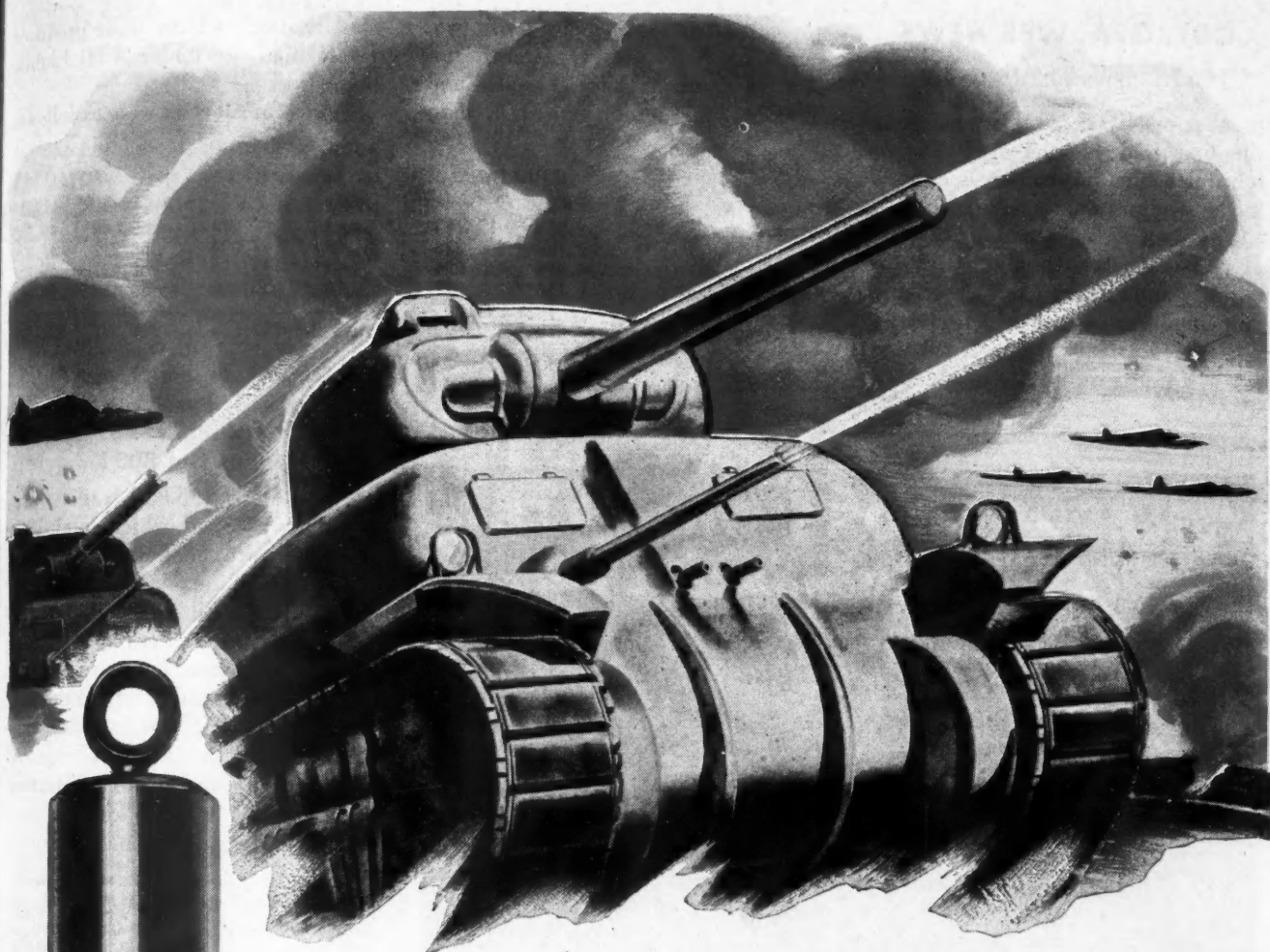
**3 SIZES Provide
COMPLETE RANGE**
 $\frac{3}{4}$ " to $2\frac{1}{2}$ " FOR ALL CARS

Now every shop can render complete, profitable service on all brake cylinders. AMMCO Brake Cylinder Hones have the necessary range to refinish all types and sizes of hydraulic brake cylinders, including single-end and double-bore types. They produce the mirror surface so essential to perfect brake action . . . remove the pitting or roughness on brake cylinder walls . . .

thus permitting smooth, easy plunger operation and positive braking. AMMCO Brake Cylinder Hones operate quickly and accurately at a remarkable saving in time and expense.



AUTOMOTIVE MAINTENANCE MACHINERY CO.
2100 Commonwealth Ave North Chicago, Ill.



TESTED LIKE THIS... *IN BATTLE*...
MONROE'S are the SHOCK ABSORBERS
you want on YOUR FLEET

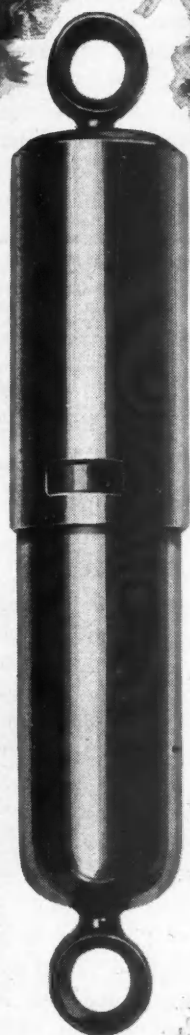
Available in sizes to control every load, MONROE'S will protect your war-vital motor equipment today, and through scientific developments will serve your vehicles of the future.

Monroe's installed now cushion equipment and load, absorb damaging shocks, prolong the life of buses and trucks that must outlast the war.

Monroe's are battle tested . . . rugged . . . dependable
 . . . backed by 28 years' experience.



Call in Monroe engineers now. Let them show you how Monroe's can solve the hydraulic control problem for every vehicle in your fleet.



ODT, OPA, WPB NEWS

(CONTINUED FROM PAGE 118)

number produced for this purpose in the first four months of 1943. As scheduled, this production is entirely in the medium and heavy categories.

The data cover actual production of trucks in the United States for military and civilian use. Jeeps, military ambulances, and wheel-drive personnel carriers are included, but not half-tracks or armored cars. Military classification includes those produced by Army, Navy, Aircraft Resources Control Office, Canada and Treasury for military use; civilian

classification includes those produced for civilian use under WPB Limitation Orders.

Totals for all sizes were as follows:

	CIVILIAN		MILITARY		TOTAL	
	1944	1943	1944	1943	1944	1943
January.....	2,531	106	56,515	49,279	59,046	49,385
February.....	2,766	226	53,446	47,094	56,212	47,320
March.....	4,626	284	52,311	55,593	56,937	55,877
April.....	8,116**	247	48,036**	55,850	56,152**	56,097
Totals.....	18,039	863	210,308	207,816	228,347	208,679

** Preliminary

196,865 Trailers Made in '43; Civilians Get 8054

There were 196,865 trailers produced in 1943, of which total 188,811, or approximately 96 per cent, were for military purposes. Only 8054 were permitted to be manufactured under War Production Board limitation orders for civilian use. These data represent approximately 100 per cent of the industry now authorized to produce trailers, and are based on reports of 123 manufacturers.

Month	Civilian	Military	Total
January.....	556	11,795	12,341
February.....	925	8,767	9,692
March.....	430	10,915	11,345
April.....	567	11,471	12,038
May.....	611	10,487	11,098
June.....	1,267	14,941	16,208
July.....	698	16,868	17,566
August.....	792	16,772	17,564
September.....	477	19,811	20,288
October.....	420	21,456	21,876
November.....	518	22,264	22,782
December.....	793	23,276	24,069
Total.....	8,054	188,811	196,865

Manufacture of Shop Equipment Liberalized

With the need for rebuilding and reconditioning automotive vehicles, the WPB has relaxed restrictions on the manufacture of many types of automotive maintenance equipment.

Restrictions on the manufacture of tire-changing tools, anti-freeze testers, battery fillers and battery hydrometers imposed by Limitation Order L-270 were removed by amendments.

In the case of 17 items, the limitation on production is raised from 20 to 100 per cent of the 1941 figure. One hundred per cent of 1941 production also is permitted for a long list of other items formerly limited to 75 per cent of the base period.

Fifty, rather than 20 per cent of base period production is permitted (TURN TO PAGE 123, PLEASE)

KEEP FLOORS OIL-FREE *this easy, economical way*



Before using SOL-SPEEDI-DRI

After using SOL-SPEEDI-DRI

Save hours of back-breaking labor

FORGET your mops, your stiff brooms, your brushes, your caustic compounds. Oil and grease can be cleaned up *more efficiently* simply by spreading SOL-SPEEDI-DRI on your floors. This remarkable product absorbs oil and grease like a blotter soaks up ink. It makes your floors skid-proof, oil-free, grease-free, and fire-retardant. Saves you from complaints of customers who track oil into their cars. Toss your oily wrenches and other tools into a box of SOL-SPEEDI-DRI and when you want them again they'll be free from oil. Thousands of busy shops have found SOL-SPEEDI-DRI to be the answer to their floor maintenance problems. It's great stuff! Write for literature and a generous, FREE SAMPLE.

SUPPLIERS: East — Refiners Lubricating Co., New York 1, New York.
Midwest & South — Waverly Petroleum Products Co., Philadelphia 6, Pa.
West Coast — Waverly Petroleum Products Co., Russ Bldg., San Francisco 4, Calif.

SOL-SPEEDI-DRI
OIL AND GREASE ABSORBENT



ODT, OPA, WPB NEWS

(CONTINUED FROM PAGE 120)

for another list of equipment items, while sales during the corresponding quarter of the base period instead of production during the corresponding quarter are made the base over which the increases are permitted in the case of two lists of items.

In addition, in the case of one list of ten items, provision is made to permit special authorizations for quotas in excess of 100 per cent of 1941 production.

Mississippi Allows 45,000 Gross on Special Permit

ODT Director J. Monroe Johnson has commended the State of Mississippi for its cooperation in raising to 45,000 lbs. the gross weight that may be carried by motor carriers transporting petroleum products in that State.

Mississippi's action, authorized for a three-month period by a Special Transportation Committee set up by the Governor, eliminates a conflict between Federal directives and a State statute limiting pay-loads to 20,000 lbs. Previously, petroleum tank trucks could not get permits for pay-loads for more than 10 tons.

The operator of such a truck will be required to obtain a permit from the State Highway Commission, to pay to the Motor Vehicle Commissioner a proportionately adjusted permit fee for the additional tonnage authorized above 10 ton, and to have

the permit in his possession at all times. The carriers are required to operate vehicles covered by this permit only over certain designated highways.

Steel for Parts Same in Third Quarter as Second

For new equipment in the motor transport field, WPB has made a third quarter allotment of 79,580 net tons of carbon steel for the manufacture of motor trucks, truck-trac-

tors, truck-trailers, bodies and third axles.

The same tonnage that was allotted in the second quarter, 137,000 tons of steel, was allowed for automotive replacement parts in the third quarter.

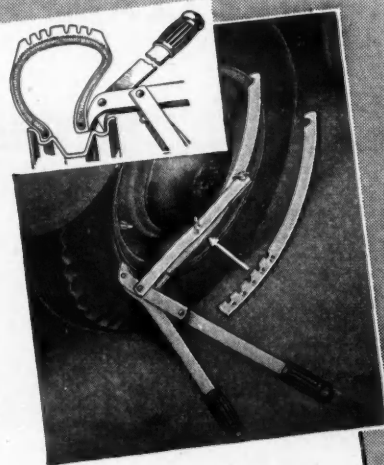
Carbon steel for motor trucks and truck-tractors was reduced by 35,000 tons from the amount requested to make allotments correspond with the ODT share of the total production schedule now authorized by the WPB, most of which is for military units.

**IMMEDIATE
DELIVERY..
NO PRIORITY
REQUIRED**

Tire Removing Tool is eliminated from Limitation Order L-270.

**BISHMAN
TIRE REMOVER**

Removes Tires EASILY, QUICKLY, SAFELY
WITHOUT TAKING OFF
WHEEL OR HUB CAP



FOR ALL DROP CENTER RIMS

As Well As Chrysler "Safety Rims". Ideal for Safety Type Rims and Tires with Puncture-seal Tubes . . . Pressure on Lever Inserts Jaws—No Driving In!

No. 595—Automotive Type for 15 to 18 inch Rims. Dealer Cost . \$3.00

No. 598—Aeroplane Type for 8 to 23 inch Rims. Dealer Cost . . \$4.95

ORDER FROM YOUR JOBBER OR WRITE US

BISHMAN MFG. CO., 1101 SOUTH 2ND STREET, MINNEAPOLIS 15, MINN.

BISHMAN



Army Ordnance officials inspect 350,000th GMC "six-by-six" military truck to be sent into the Service. Left to right: I. B. Babcock, general manager, GMC Truck & Coach; Brigadier General W. P. Boatwright; Brigadier General J. K. Christmas; Brigadier General A. B. Quinton, Jr.; and R. J. Emmert, GMC's Factory Manager. Including "Ducks" and other types of specialized vehicles, GMC's military production is now close to the 400,000 mark.

RECAPS PAY CASH AND MILEAGE BONUS

(CONTINUED FROM PAGE 64)

method of applying or using them, gave us 30,000 miles at \$17.25. Three recaps on one tire carcass on this basis, gave us 90,000 miles for \$51.75 compared with 60,000 for \$85. The fourth recap, now increasingly possible, raises this saving appreciably.

These records, as reported, pertain

to a schedule which is the nearest possible approach to perfection, and were gained by experience through trial and error. For example, we find that the highest peak of economy came and still comes from our use of recaps on front wheels. On these we get the most mileage per cap and the highest rate of multiple caps, with practically no premature road failures.

As new pre-war tires were best, and as we are now getting only 30,000 to 35,000 miles on original

treads of new wartime tires, the savings we gain on a single recap that gives its full service are obviously larger than those gained on pre-war tires. Wartime camelback is keeping up the pace well—25,000 to 30,000 miles per recap job.

But the fly in the ointment here in our experience is that recaps will not hold up for us on driver wheels. The risk is so great, and the cost so prohibitive, that we cannot use recaps on drivers. Whenever tread-worn tires are taken off of these wheels, if sound, we recap and transfer them to some of our short haul slower moving trucks—three regular and three dump trucks. On these units, we get good mileage from those recapped tires.

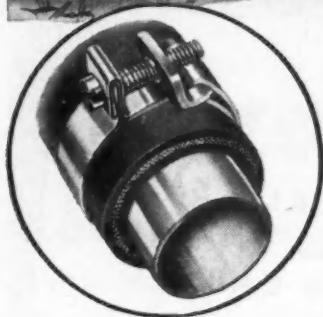
Our five tractor truck and trailer units average 100 miles per day hauling heavy castings from local foundries to war production plants in Detroit, Fort Wayne, and Muncie, Ind. The tractors pull, and the trailers get the loads. Recaps on rear of tractors, as said before, won't take it. On trailers, the records are not too bad, considering the hazards. For example, one recap on a trailer failed after two weeks, or about 1200 miles, another, right in Fig. 1, blew out in 100 miles. These two failures occurred in one month. Aside from these occasional early break-downs of carcasses, recaps on trailers will give us about one-half the mileage averaged on fronts, but not many of the trailer-used recaps can take the second one.

It is only fair to state that the hazards here are considerable. Our trucks get into junk yards and back into foundry driveways here and in Detroit, Fort Wayne and Muncie. The tires run over metal gears and various other pieces of scrap metal. Wire is a gross offender. Small pieces of it imbed themselves in the tread and can't be seen. They work through the casing, causing slow leaks or flats on the road. Naturally, this weakens the injured casing, and often causes faster wear on the uninjured tire on the same dual wheel by putting extra strains on it. Thus, the uninjured tire fails because the first dual did.

The human factor is present too. We have had some recapped tires fail on the first trip out caused from an air pocket between the camel back (TURN TO PAGE 126, PLEASE)

CENTRAL UNIVERSAL HOSE CLAMPS IN

Action!



THE *Half Track* DEPENDS ON CENTRAL CLAMP-POWER

Central *Universal* Hose Clamps are supplying vital clamp-power with unfailing dependability to America's war machine.

They are strong enough for every production and service requirement . . . precision built of rustproof, extra-heavy cold rolled steel . . . self-locking . . . cannot strip or loosen . . . able to withstand abnormal pressure, stress, strain and vibration . . . easier to use in hard-to-get-at places . . . quickly attached or removed without disconnecting the line.

A single length *Universal* Clamp fits hundreds of diameter sizes.

•Army and Navy combat vehicles, farm and road-building machinery, diesel and gasoline engines, and all types of radiator hose are equipped and serviced with Central *Universal* Hose Clamps.

SEND TODAY FOR
FREE SAMPLE
When requesting sample
please specify "Universal".

CENTRAL EQUIPMENT CO.

900 SO. WABASH AVE. CHICAGO 5, ILL.



Smashing every transcontinental speed record for transport planes, TWA's giant Lockheed-built "Constellation" wrote a new page in the history of pioneer aviation last April 17.

AC ceramic aircraft spark plugs were chosen to fire the four 2,200 horsepower Wright engines. In the words of the flight engineer, the spark plugs gave "complete satisfaction."

Such an achievement is a tribute to the men who took care of the huge ship, and to the skill of the pilots. It is also new proof of the quality of AC Spark Plugs. And it is fresh evidence of the reliability

which millions of AC users—motorists, truck and bus operators, yachtsmen, and farmers—know intimately, and have known ever since 1908.

In the Liberty engine of World War I, AC pioneered the ceramic aircraft spark plug and was the only builder. The record flights of Lindbergh, Maitland, Acosta, Byrd enabled AC to share in further historic aviation pioneering. World War II—and the "Constellation"—find AC ceramic spark plugs pioneering again, in battle and at home.

Every Sunday Afternoon — GENERAL MOTORS SYMPHONY OF THE AIR — NBC Network



SPARK PLUGS

DO MORE THAN BEFORE—
BUY WAR BONDS NOW!

RECAPS PAY CASH AND MILEAGE BONUS

(CONTINUED FROM PAGE 124)

and the old carcass. One of these is shown at left in Fig. 1. Imperfect inspection in the tread shop failed to show up a loose shoulder resulting in ruinous tread separation—all just human errors, but they count against the tire records. Bad roads, too, caused by inability of the state highway systems to render proper maintenance,

are a source of tire failures, and we deem it only natural that the older carcass, with its longer use and age, succumbs to the road hazards quicker than a new tire.

Parts handicap maintenance

Although two of our trucks are 1936 models, and the others between 1937 and 1940's, we can keep them going if we can obtain good parts. We did a good job until inferior parts arrived last year to increase our labor and maintenance costs.

These facts are exemplified as follows: Our parts bill for February this year, was 3 1/3 times more than for the same period in 1943, and that is a fair average. Besides, our labor costs on maintenance were 1/3 more throughout 1943 than at any other period in our business of 27 years. Our trucks were down more often, thereby taking them out of profitable operation for longer than normal periods. As far as the war effort is concerned, these inferior parts, their slow delivery and the extra time out for repairs, held up shipments of war materials.

These high operating costs had the reduced efficiency of our fleet will be seen in the following examples. Before the war, we never changed bearings or ground valves in our engines. When these parts wore out and began to cause trouble, we bought newly rebuilt engines. We could run these rebuilds for 35,000 miles, minimum, to 50,000 miles, maximum. We could leave an order in Detroit at night and have our driver pick up a rebuilt engine the next morning. But, today, it requires two weeks or more to get a delivery. And if we get 7000 miles from it before the bearings cut out, we think it is a record.

In one engine, the bearings went out in 1300 miles. In another rebuilt engine, the bearings went out in 6500 miles. We got a replacement and this failed in 1500 miles. The third time we got 6000 miles. The fourth replacement in this unit is still running. From these figures, it will be seen that on our 100-mile daily average, we are getting less than a month's use out of these rebuilt engines using wartime parts—yet they used to stand up close to 50,000 miles and give us good performance.

The condition is chronic. Bearings are the worst, as outlined above. Both intake and exhaust valves cause trouble in all our engines, which are Fords. But they have stood up about twice as long as bearings. These below-pre-war-quality valves cause other damage. Recently, one broke off and went through a piston, scoring the walls, which involved a considerable extra expense and delay for parts and a full day's labor.

We have effected some improvement on valve mileage and engine performance by closer check-ups on
(TURN TO PAGE 130, PLEASE)



"REMEMBER ME?"

"Sure, you remember! I'm the kid that used to work down at the corner garage . . . they used to call me 'Grease Monkey.' Well, I'm still at it, see, only this time for Uncle Sam. Now, instead of sedans and jalopies, I work on jeeps, and peeps, and half-tracks and prime-movers. A little different, sure, but one thing's the same . . . I'm still usin' K-D Valve Tools. An' boy, out here where speed counts, *that's some-thin'*. Gotta gettem rollin', but fast. Keep on buyin' War Bonds and Stamps . . . we'll do *our* job out here.

K-D Tools have gone to war. We're proud of that. But we have a job to do here at home, too. We are supplying Jobbers just as fast as we can to fill the needs for repairing and servicing essential civilian cars and trucks. K-D Mfg. Co., Lancaster, Pa. and Hamilton, Ontario.

K-D TOOLS
The Hustlers for Your Toolbox!

In war or peace
B.F. Goodrich
FIRST IN RUBBER



Teaching trucks good posture

A typical example of B. F. Goodrich development in rubber

EVER drive behind a loaded truck that was leaning heavily to one side? Looked hazardous, didn't it? And it was . . . especially for the tires.

"Poor posture" in trucks is often the result of unequal load distribution . . . more weight on one side than the other or more weight in front than in back. Even if this unequal distribution is imperceptible to the eye it causes one tire to do more than its share of the work and premature tire failure follows.


For years thousands of tires on trucks all over the country were wearing out before their time from this cause alone . . . in spite of the diligent efforts of fleet owners to correct the condition.

Then B. F. Goodrich, drawing on many years of experience in handling the tire maintenance problems of large bus fleets, originated the B. F. Goodrich Tire Conservation Service for fleet operators.

Under this comprehensive, point-by-point program, factory-trained tire specialists take over the complete supervision of your tire care. They check for unequal load distribution as the man is doing in the picture above. They detect mismatched duals, misaligned wheels, and improperly inflated tires. In other words, they know where to look for tire trouble and how to stop it before it starts.

Dozens of fleet owners who are

now using this low-cost service report savings in rubber, mileage, and money. Their typical comments range all the way from "the number of failures has been reduced 60%" to "we believe we will show a 25% savings."

Only a few trained men are available to take over a limited number of additional fleets in certain areas. If you would like to know how this unusual tire conservation plan can increase your truck fleet tire mileage, write the Tire Conservation Dept., The B. F. Goodrich Company, Akron, Ohio. For good truck tires see the local B. F. Goodrich dealer. 

B.F. Goodrich
Truck & Bus Tires

RECAPS PAY CASH AND MILEAGE BONUS

(CONTINUED FROM PAGE 126)

carburetors. We give them a thorough inspection every 2000 miles, even taking down and cleaning them if necessary at each inspection period. This boosts our mileage on gasoline approximately 10 per cent over previous experience and we think it has improved engine performance by giving more power, as well as giving

longer life to the valves than we got when these low grade wartime parts began to come in.

Besides all of these cost-increasing factors, a lot of our maintenance troubles result from new employees who are not competent by training to do good work and, because of the labor shortage, are too independent and disinclined to learn. Only five of our old drivers are with us. They are loyal and dependable—not afraid to do a little extra work, and they do it well.



PAR MODEL 15

- One of the most popular models in the PAR line. A little giant for a large volume of air.
- Designed for stations and shops using a multiple of air operated appliances.
- A Heavy Duty 1½ H.P. two stage 4 cylinder, compressor equipped with 60 gal. tank.

- Write for illustrated brochure of details.
- BY COMPARISON—YOU'LL BUY PAR.

PAR

DIVISION

LYNCH MANUFACTURING CORPORATION
DEFIANCE, OHIO, U. S. A.

Our most critical needs for a better maintenance program are better replacement parts, prompt delivery and more efficient help.

END

(Please resume your reading on P. 66)

BUSINESS PROSPECTS IN THE POST-WAR PERIOD

(CONTINUED FROM PAGE 61)

fields will be developed, they are well worth watching.

FROZEN FOODS: This field has been growing rapidly and is expected to expand tremendously after the war. One of the chief concerns of the frozen food people is availability of adequate transportation at fairly reasonable rates. Motor trucks equipped with deep freeze refrigerator equipment might very well be the answer.

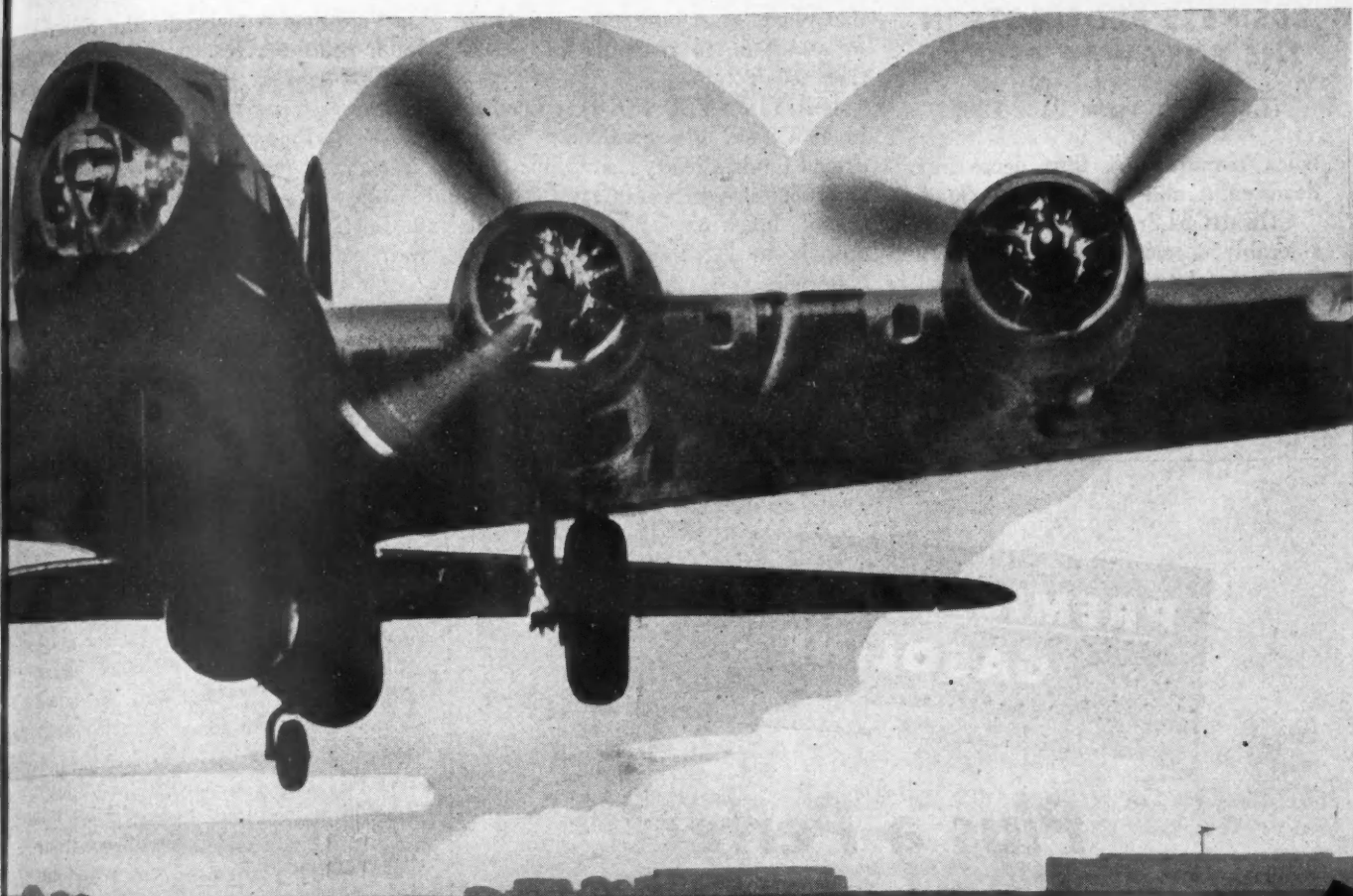
AIR CARGO: Predictions as to development of this field vary widely. Some believe air cargo is a pipe dream, while some air enthusiasts would have us believe that other modes of transport are doomed. The answer lies somewhere in between. Planes will haul freight—there is little question about that. In time they probably will haul large quantities. But they should create more new traffic for trucks than they take from trucks. Representatives of air and truck transport have been holding joint sessions in an effort to work out coordination of the two services. Whatever the growth of air cargo might be truck feeder service will be essential.

PREFABRICATED HOMES: This industry has experienced remarkable growth during the war and its leaders anticipate continued growth in the postwar era. According to available information at least 800 companies intend to produce prefabricated homes after the war. This means there will be need for a flexible transportation service of the type performed by the trucking industry.

PLASTICS: The outlook in this field is considered very bright. There should be many new items to be transported.

ALUMINUM: Many of the wartime developments in this field hold high promise for civilian application. Aluminum will be used much more extensively than ever before. For example, it probably will be used in

(TURN TO PAGE 134, PLEASE)



FOR SALE - Yet!

Pearl Harbor and war! . . . And an urgent appeal from the Army Air Corps for a brake block capable of stopping a 30 ton bomber landing at 120 m.p.h. in 15 seconds.

Within 90 days, Raybestos' skill, experience and resource had supplied the answer to this tough problem.

Called "I492", so great was its discovery and development, this friction material is stopping bombers and super-bombers, heavy transport and fighter planes — Flying Fortresses, Liberators, Commandos, Hell-Divers, War Hawks and Thunderbolts.

Production of 5 tons of "I492" brake blocks and segments a day for the Army Air Corps is one of Raybestos' biggest war assignments and greatest achievements.

Raybestos "I492" NOT FOR SALE for civilian use because entire production is for war requirements.

"I492" will be the outstanding Heavy Duty Lining for trucks, buses and industrial equipment, — and we offer samples specially engineered to meet your post-war friction requirements.

THE RAYBESTOS DIVISION of Raybestos-Manhattan, Inc., BRIDGEPORT, CONN.

FOR WAR AND ESSENTIAL CIVILIAN EQUIPMENT

BUSINESS PROSPECTS IN THE POST-WAR PERIOD

(CONTINUED FROM PAGE 130)

truck manufacture, thus decreasing deadweight and increasing payload.

CHEMICALS: The war has considerably accelerated this industry's development, and some of the so-called substitutes are better than what they have replaced. The chemical industry will have practically no reconversion problem in the sense

that plants must interrupt production to retool or to re-equip for peacetime production.

DEHYDRATED FOODS: Leaders in this field are confident. Dehydrated foods already have found considerable use in hotels, restaurants, school lunchrooms, etc. The job now is to get them across to the housewife.

TELEVISION: There is every indication that an energetic drive will be made by the radio and television industry to launch television not only

in the home but also in film theatres after peace arrives.

As I said at the start, the purpose of these charts has been to give you a quick glimpse at some of the more important items which almost certainly will be available for transportation in large quantities after the war.

Now, the next big question is: *How do you get it?*

I shall not attempt to give you the answer. But I am going to stick my neck out long enough to give you an idea of how I'd go about getting started.

I would study my territory thoroughly and list as many shippers as possible—those already served as well as new possibilities. I would contact as many of these shippers as possible, particularly the larger ones, and ask them their postwar plans, and discuss with them how my truck service might be fitted in with their plans.

The fact that a trucking company is serving a plant today does not mean necessarily that it will continue to serve that plant after the war, and vice versa.

Here is plant "A." It has always shipped the same type of commodities during both peace and war. But perhaps it will enter some new and different field or fields after the war. If such a change is made will it mean more or less traffic for your company? What can you do to make sure the answer is not *less*?

Plant "B" produced one line of merchandise before the war, but has been making something else during the war. What is it going to do after the war? If you can determine the answer now you will be in a better position to equip your company to meet this plant's demands for service.

Plant "C" is new, a war plant. Will it close down after the war? Or will it turn its energies to peacetime production?

Local chambers of commerce should be helpful in supplying the answers to these vital questions. Wherever possible, however, a personal conversation with the shipper is preferable. For a personal call not only will supply direct answers to your questions, but at the same time give you opportunity to become a working partner in the shipper's plans.

(TURN TO PAGE 136, PLEASE)

PREMIUM QUALITY GASOLINE

Plus a Perfect Break-In Oil

Lubri-Gas is today's answer for proper lubrication after a motor overhaul. Added to your gasoline, it enters the combustion chamber as an oil fog which condenses and bathes all upper cylinder parts with a clean oil film.

Lubri-Gas puts your new and newly overhauled motors "in the groove." Its continued use helps to prevent carbon, reduces friction, increases fuel mileage and adds pep to all motors. Lubri-Gas keeps your cars and trucks on the road and out of the repair shop.

LUBRI-GAS TREATED GASOLINE *Cleans and Lubricates as It Powers the Motor*

Lubri-Gas treatment introduces a carbon and sludge dissolving lubricant as a clean unburned oil fog—with the fuel. Improves ignition. Frees sticky valves. Increases compression. Prevents blow-by and oil dilution. Reduces friction between piston rings, piston, cylinder. Prevents overheating. Increases power, SAVES WEAR, REPAIR, GAS, OIL.

• Anti-Friction • Anti-Knock • Anti-Carbon • Anti-Sludge

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FOR TRUCKS, TRAILERS, AND BUSES



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more about...*

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DRUMS**

by **GUNITE**

Engineered for the Given Problem

For replacement, and for original equipment, GUNITE Brake Drums have a lot to offer. They are made of a self-lubricated metal, with graphitic structure evenly distributed, which maintains a uniform coefficient of friction around the whole drum. They are designed for high heat conduction that means long life, and high rigidity that means elimination of flex on cam and anchor sides. They do away with troubles caused by distortion,

warpage, score, and heat check. They have proved superior in all types of service on cost per mile, lining life, brake efficiency, and interval between adjustments. These advantages are obtained through careful and experienced engineering to meet the demands of the required service, backed by quality manufacture with full metallurgical control. Use GUNITE for lasting satisfaction!



WRITE FOR
THIS CATALOG

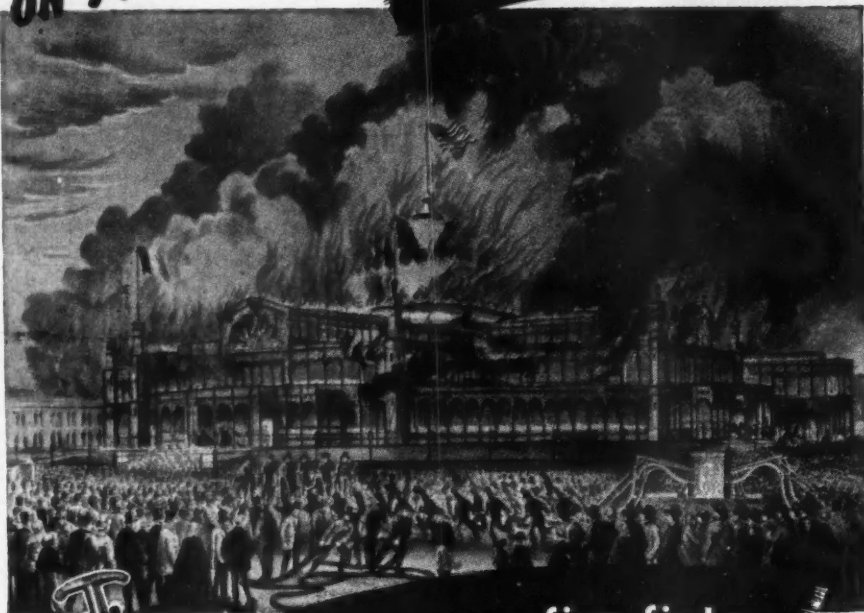
Over 850,000 Gunite Brake Drums have been made since 1928



GUNITE FOUNDRIES CORPORATION
ROCKFORD, ILLINOIS

HANG THESE
ON YOUR WALL!

this famous fire



this famous fire fighter



S.O.S.
FIREGUARD
1 qt. size

If it's
**GENERAL
DETROIT**

it's better

Hundreds of the world's most precious art treasures were destroyed within 30 minutes when flames engulfed the New York Crystal Palace on October 5, 1858. As an event of world-wide interest this historic fire was illustrated by Currier & Ives, renowned print makers. A free copy, reproduced in black and white, is available now from The General Detroit Corporation. Ideal size for framing. Limited supply. Send coupon today!

S.O.S. FIRE GUARD is a quick, efficient, "on-the-spot" fire fighter. Handy 1 or 1½ qt. sizes for car, truck, boat, airplane, home or plant. Instantly extinguishes flame . . . guards against post-ignition hazards . . . S.O.S. FIRE GUARD is a vaporizing liquid (C.T.C.) type extinguisher, recommended for electrical, gasoline, oil, and similar fires. Quality mass produced for essential users by General Detroit, makers of Alaskan, Floafome, and *CD/99*. Prompt delivery.

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Title _____

Attach this convenient coupon to your letterhead and mail. (500)

HANG
THIS ON
YOUR WALL



BUSINESS PROSPECTS IN THE POST-WAR PERIOD

(CONTINUED FROM PAGE 134)

And here is town "D." If it is a town that has boomed during the war, will it fall back to the old tempo or retain its present activity after the war? If it is a town whose activity has declined during the war, what are its chances of regaining its former status?

Conditions after the war might be excellent from a general economic standpoint, but that would be small consolation to motor carriers if they were unable to get an adequate share of the right kind of traffic. On the other hand, general conditions could be relatively bad, and motor carriers might prosper.

The whole point is that whether conditions are good or bad, a lot of freight is going to move. If you have a good idea in advance of the type of freight that will move and where it will move you will be in a much better position to obtain it.

END

(Please resume your reading on P. 62)

Automotive Parts Reclaimed By Power Brushing

The application of power brushing to the salvage of parts from wrecked or otherwise junked automotive vehicles is reported as being an effective and time-saving procedure. Power brushing is said to do in relatively few minutes the work of removing rust grease, scale and dirt.

According to The Osborn Mfg. Co., Cleveland, the parts to be cleaned are simply gone over with a power driven brush, spinning at 3600 revolutions per minute.

Power brushing affords the further benefit of removing burrs, nicks, etc., left on the parts during handling or dismantling.

The equipment used for the work consists of either a portable hand tool, electric or compressed air operated, or standard polishing jack in which is mounted a wire brushing wheel of 8 in. diameter and 5/8-in. thickness, having wire of .0118 size. Held so that the wire ends contact the surface to be cleaned, the spinning wheel makes short work of grease, dirt, scale and rust removal.

THIS 6000 GAL. HEIL "TRAILERIZED" TANK is one of the largest semi-trailer tanks in the world.



... "24-hour daily service of HEIL TRAILERIZED TANKS

enables us to meet our schedule of around 320,000 gallons every day,"

says Dick O'Boyle of Washington, D. C.

... and here are the *Reasons Why!*

Heil "Trailerized" (frameless) Tanks are designed and built for around-the-clock service without those bothersome minor troubles that add up to major losses in time and gallons delivered. If you want greater total gallonage, lower costs, and a reputation for "on-time" delivery, specify "Heil Trailerized Tanks" on your government applications.

Write for further information.

T-102

Government Program
makes these Heil "Trailerized" Tanks available
Gasoline

Single Axle: 4200, 5000 gal. and larger
Tandem Axle: 5000 and 5400 gal.

Butane, Propane
3000 gal. payload and larger.



THE HEIL CO.

GENERAL OFFICES

MILWAUKEE 1, WISCONSIN

CALLING THE TURN ON TRUCKS TO COME

(CONTINUED FROM PAGE 53)

over the tailgate and we can hardly afford that much concentration of weight at the rear.

There's been talk of flat engines under the body, like some of the buses, but anyone who has ever nailed lath on a ceiling knows why mechanics don't regard the accessibility of such engines too highly.

That's why a new arrangement is being considered, in which the engine consumes no extra wheelbase, its weight is nicely distributed, the cab is ideally located and easier to get into and out of than any you've ever seen and the engine and associated parts can be standard construction.

Styling

I hope that post-war designers will forswear their vulgar efforts to make a motor truck look like a passenger car. The bus designer struck out

along functional lines some years ago and while the gaudy circus-wagon paint effects which so many operators have demanded have somewhat marred the effect, modern buses in their intrinsic proportions embody a serene dignity of line and mass approached by no other motor vehicles unless we include some of the best examples of large tank trucks.

The chief objection to gaudy tinware on a motor truck is not its aesthetic offensiveness, however, nor the relative fragility of the tacked-on moldings, brittle die-castings and billowing sheet-metal; but it is the serious violence which these things do to accessibility either for inspection or maintenance of vital parts, their interference with proper ventilation of the hood, the brakes, the tires and the cab, and their inhibition of frank, honest ruggedness so needed in such parts as radiators, fenders, lamps, hoods and steps.

Frames

Did someone suggest that the post-war truck would be frameless, as pre-war buses were and as post-war passenger cars will doubtless be in time? I cannot agree. Aside from frameless tank trailers, I think we are going to have to resign ourselves to the necessity for frames on motor trucks for a long time to come.

The trouble with frame design is that we lay our frames in on the assembly drawing with reference to the axles only. Then, when it comes to mounting a flat-floored body we build up a lot of staging from the frame up to the floor.

Not right away, of course, but in due time, you are going to see a frame which starts at the underfloor level and then drops down—like an inverted-arch bridge. It's going to have cross-members which really do a job, too, bracing the frame cross-wise and supporting the full width of the body as well.

No more sills and bolsters except just enough to hold the body together while it is being lowered onto the frame. Maybe these will be detachable assembling jigs only, removed after the body is mounted.

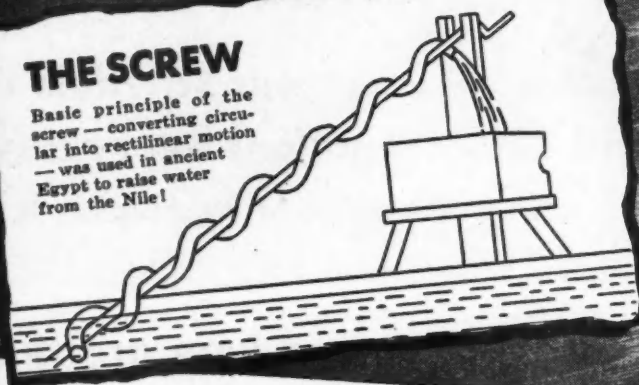
I'd really like to tell you more about this frame, but there's a shop out in Pennsylvania where they're still trying to find something wrong with it. I can give you this hint,

(TURN TO PAGE 141, PLEASE)

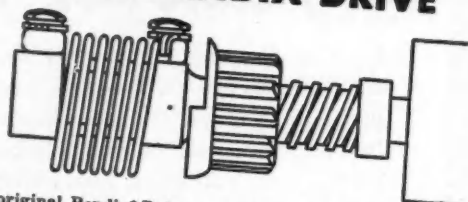
BASIC PRINCIPLES

THE SCREW

Basic principle of the screw — converting circular into rectilinear motion — was used in ancient Egypt to raise water from the Nile!



THE BENDIX DRIVE



The original Bendix® Drive presented the new basic principle of a starter pinion moved automatically along a screw shaft into mesh with the engine flywheel gear, then automatically moved out of mesh by the greater speed of the flywheel after the engine has started. This invention, by abolishing hand cranking, made the automobile practical for everyone, especially women.

The simplicity and adaptability of the basic principle of the Bendix Drive are evidenced by more than 60,000,000 installations. In all of them, fundamental advantages of the principle are demonstrated: impossibility of damage by accidental engagement of the starter pinion; higher break-away torque which gives increased cranking power. The dependable, low-cost efficiency of improved types of the Bendix Drive is at the service of the automotive industry—important in postwar planning.

The Bendix Drive is an important member of "The Invisible Crew"—precision equipment now speeding from more than 30 Bendix plants to world battle fronts.



*Trade Mark of Bendix Aviation Corporation

ECLIPSE MACHINE DIVISION

CALLING THE TURN ON TRUCKS TO COME

(CONTINUED FROM PAGE 138)

though: Everybody knows that a tube is the most efficient shape for torsional stress—but how about using it for the longitudinals instead of for the cross-members?

Suspension

To most people, the term "suspension" means springs. You're right, that's wrong! There's a lot more to suspension than just springs.

As a matter of fact there isn't a standard motor vehicle in the world that really has such a thing as suspension. A thing is suspended when it hangs; but our motor vehicles don't hang from the axles by their springs—they are propped up by them.

No, I don't propose going back to the DeWitt Clinton for a model to follow in designing the suspension of post-war trucks, but I do say that the higher off the ground we get our centers of suspension the safer and easier riding our vehicles will be, other things equal.

Maybe the leaf spring doesn't lend itself to that so well as other types. Certainly the coil spring, if used directly between the axle and frame doesn't. Could be that the torsion spring is the answer. There are numerous ways in which it can be adapted—only a few of which have been tried.

And how about knee-action for trucks? Search me. I know of one manufacturer who tried it experimentally and found that he gained absolutely nothing for the extra weight and cost. Maybe he didn't do it right.

Powerplants

I'm afraid there will be more disappointments on the score of powerplants in post-war trucks than from any other source. The public has been fed a terrific amount of pap about the revolutionary things that high-octane gas will do to the gasoline engine. We have been encouraged to dream of Jeep-sized engines which will pack the wallop of a locomotive at motorcycle's gas consumption. There are two groups of facts that stubbornly obtrude:

FACT NO. 1—We are not going to get 100-octane gas for our trucks.

Even 86-octane fuel will be too costly to pay its way. Even if we get it, we couldn't come anywhere near boosting the power and economy of engines to the point predicted.

The trouble is that so long as we stick to a carbureted, throttle-controlled engine we must continue to do our work at a compression pressure well below that at which even pre-war third-grade gas pings.

High-octane gas has only one merit over that of lower rating—it can be used without ping at higher compression pressure.

We must continue setting our compression ratio at the figure which will give us the maximum compression pressure which the fuel will tolerate under full-load open-throttle conditions.

A little gain in octane in the regular grade will admit of a little gain in compression ratio. This will give us a little gain in maximum power and torque and a little better economy so long as we operate at wide-open throttle. But unfortunately this (TURN TO NEXT PAGE, PLEASE)

Synthetic RUBBER TUBES MUST BE REPAIRED *Right*

PROPER PREPARATION



DILLECTRIC VULCANIZED



Making repairs in synthetic rubber tubes requires special attention. Proper preparation, fill-in, and vulcanization are vitally necessary to prevent the injury from enlarging and spreading beyond the repair.

The Dillelectric method assures a safe, dependable repair in either synthetic or natural rubber tubes. You take no chances on repair failure when you follow the few simple instructions prepared by Dill engineers. This helpful information answers your repair problems. Ask for it, today.

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700 EAST 82nd ST. • CLEVELAND 8, OHIO

Free INSTRUCTION MANUAL ON REQUEST

Pictures and describes in detail the proper preparation of synthetic tube injuries for safe, permanent vulcanization.

DILLECTRIC
REG. U. S. PAT. OFF.
Electrically **VULCANIZED**
TUBE REPAIRS

CALLING THE TURN ON TRUCKS TO COME

(CONTINUED FROM PAGE 141)

advantage disappears when we lower the compression by throttling the engine.

FACT NO. 2—Higher b.m.e.p. will not save much in engine size or weight. For the same horsepower, an engine with higher b.m.e.p. may be made into somewhat smaller piston displacement, but it must have

just as big a crankshaft, bearings just as large, just as heavy a fly-wheel, the same valve gears, etc., as the lower-compression job, for these things are determined by the output of the engine—in terms of torque and speed.

Except for somewhat shorter stroke and piston length, little is to be saved in the weight of the block. Nothing can be lopped from its length, for the length of a conventional engine is set by the space required by its 12 valves. Maybe the new engine will

have to be even heavier because of the higher pressures and temperatures of combustion.

What to Expect

Of course there will be refinements. If it were not for the extravagant build-up of the octane occultists, the improvements in post-war engines would be quite impressive. This includes the small but worthwhile gains that will accrue to higher-octane fuel. Here are some of the things to look for after the war:

Generally cleaner and more accessible design. Some of the accessories which we have been tacking onto our engines as though they were afterthoughts which had not occurred to the designer when he laid out the engine will finally be accepted as essential parts and will be provided for from the start.

Such things as oil filters, thermostats, governors, starters and generators will be recognized at last as here to stay and will be built in, as well as the carburetor and distributor.

There will be more overhead-valve engines, principally because their valves are more easily serviced.

Bigger crankshafts, better balanced and carried on larger, more durable bearings.

Longer-lived, more rugged valves and exhaust valve seats.

Improved cylinder head gaskets and hold-down studs.

Generally improved induction systems—better manifold distribution, freer porting, more effective and fool-proof air cleaners—more accurate and dependable governors.

A great deal more attention to crankcase temperatures. Renewed attempts will be made to adapt oil coolers of various sorts, which will undoubtedly result in reduced lubricant temperatures, under heavy duty, and quicker warm-up.

The real solution will be more fundamental than this and the change will involve some important by-products in the way of better bearing alignment and engine stiffness.

Every once in a while somebody goes crazy trying to dope out a perfect transmission which will make a gasoline powerplant truly adapted to highway vehicles and murmurs plaintively about steam. "If we had steam power," he muses, "There wouldn't be any transmission or clutch."

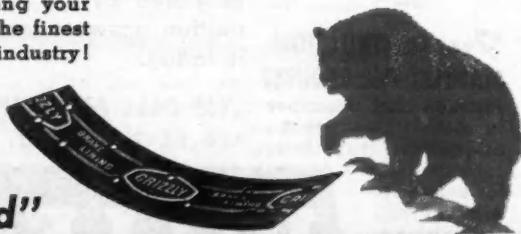
(TURN TO PAGE 144, PLEASE)

HIGHER S.Q.* STARTS IN YOUR SHOP



Millions of untried and unproved drivers are at the wheels of America's war-vital motor vehicles. Raising their *Safety Quotient** quick starts in your shop! Only the most efficient performance of *all* units can protect the experienced and the inexperienced alike. For utmost efficiency in brake operation, essential to raising your drivers' S. Q.*, use Grizzly—the finest product of the brake lining industry!

Grizzly Distributors everywhere carry adequate stocks to serve you. Grizzly Manufacturing Company, Paulding, Ohio, plants in Paulding and Los Angeles.



"Bear in Mind"

GRIZZLY
REG. U. S. PAT. OFF.
BRAKE LINING

Air Forces Refueler



"Porto-Van" Supply Unit

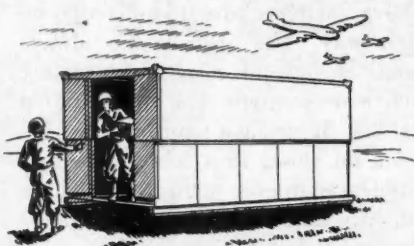
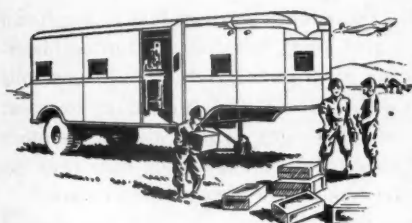


Photo Laboratory



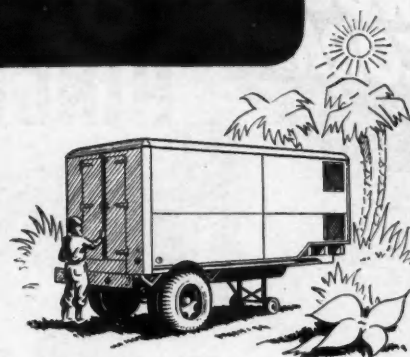
CONTROLLING TEMPERATURES for Vital War Supplies and Services



Repair Shop Trailer



Map-Making Trailer



Ten-Ton Food Hauler

Armstrong's LK Corkboard and Fiberglas* Insulate Wide Range of Army Transport Units

TODAY our Army moves forward on wheels. Many of its mobile units haul perishables and require rigid maintenance of temperature. Others house special, front-line services that must be protected against climatic extremes. These jobs demand dependable insulation.

Shown here are a few of the many different types of trucks and trailers for which Armstrong has supplied that insulation—Armstrong's LK Corkboard and Fiberglas. Used singly—or teamed together—both materials can be relied on to give efficient service under the most severe conditions.


FIBERGLAS, spun from threads of molten glass and compressed into lightweight, semi-rigid bats, forms a highly

effective barrier to heat. Bats are easily cut to any shape or size and all trimmings can be utilized. Neither severe vibration nor jolts will cause Fiberglas to settle or sag. The material is used in sides and tops of trucks and trailers.

LK CORKBOARD is recommended for the floor of every type of insulated truck body. In addition to insulating effectively, it is lightweight and strong. It supports the load and reduces the

number of cross members required. It also reduces vibration transmission.

In addition to these materials, Armstrong offers also Temlok, a rigid, lightweight, highly efficient fibreboard. Temlok is made from the fibres of long leaf Southern pine, and its natural resins give it high moisture resistance.

FOR COMPLETE DATA about Armstrong's equipment insulations, write for your free copy of "Insulation for Trucks and Trailers." Armstrong Cork Company, Building Materials Division, 3507 Concord Street, Lancaster, Pennsylvania. 

* Reg. U. S. Pat. Off. Owens-Corning Fiberglas Corporation

ARMSTRONG'S EQUIPMENT INSULATION

LK CORKBOARD • FIBERGLAS* • TEMLOK

CALLING THE TURN ON TRUCKS TO COME

(CONTINUED FROM PAGE 142)

Of course he next reflects upon all the well-known reasons why steam failed to survive as a motor vehicle power source and why it can never come back.

Some day, though, some one of these may be so far gone that he forgets it can't be done and the crazy loon will do it! Don't say I pre-

dicted steam trucks right after the war, though—or even later on. You just cannot depend upon crazy people. But it could happen!

Gas turbines are undoubtedly on their way. The obstacle has always been the lack of a metal possessing sufficient strength and dimensional stability at elevated temperatures. We are a lot closer to a solution of that problem than ever before. Don't look for them immediately after the shooting stops; but they're coming.

I do not seriously anticipate rocket

propulsion of motor trucks within our time, so axle makers may rest easy.

Cooling

What we really want in place of what we still insist on terming a cooling system is a temperature modulating system—something to maintain as nearly as possible a constant operating temperature.

We can never hope to get the maximum thermal efficiency from our engines until we learn how to maintain them within a narrow range about the ideal temperature regardless of speed, load or ambient temperature.

We can never hope to get freedom from cylinder head gasket trouble, valve warpage, stud-stretching, blow-by, oil pumping, oil sludging, ring coking, bearing corrosion and a host of other ills so long as we have overheating and over-cooling.

Minimum valve lash; minimum value stem, wristpin, piston and bearing clearances; lighter crankcase oils with safety; and minimum overheat of intake gas—these and many other aids to efficiency await narrower extremes of operating temperature.

So far, water cooling has done a better job of maintaining temperature than air; but it would be convenient if water could get a little hotter before it boiled—particularly at high altitude.

Maybe someone knows how to control air cooling to closer limits and above 212 degrees. That would be fine if it could be made to work without so much horsepower going into the fan or blower—especially when we need less, not more cooling.

Until then, and for the sake of the much stiffer construction we can get with a block-cast water-cooled engine, we still continue to interpose a liquid conducting medium between the cylinder walls and the ultimate air convection.

So far, we have relied upon two principal means of controlling the cooling of water—thermostats and radiator shutters. Both are usually mere blockers-off and as such rather callous wasters of power. One increases the resistance to the flow of water from the pump and the other that of air to the fan.

Of recent years there has been much interest in variable-pitch fans, which move the air in approximately

(TURN TO PAGE 146, PLEASE)


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No. 5862, 1½" Radius
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TAILOR MADE FOR BUS and TRUCK OPERATORS

Heavy duty. Long Service **OIL FILTER REFILL**

Here's the famous, sludge-

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under long hauls and punishing operating
schedules. You can put WIX in your motor
oil filters and depend on it to keep your oil
and motors cleaner—longer. There's a size
and type in this sturdy line precisely designed
to fit YOUR filters. Remember — the Knit
Cover filters, too!



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**THE KNIT COVER
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CALLING THE TURN ON TRUCKS TO COME

(CONTINUED FROM PAGE 144)

the volume required for the degree of cooling desired. For many years some resolute manufacturers have used by-pass thermostats in preference to the blocking type. The latter merely divert the flow of water; they do not reduce the load on the pump. Maybe we shall have variable-pitch or variable-speed water pumps, too.

Those who have studied cylinder

distortion know that the minimum difference between inlet and outlet is desirable and that the nearest approach to this condition is obtained with a thermostatically-controlled hot-water by-pass, which, of course, operates only with pump circulation.

The trend to deeper water jackets will certainly increase. But when the water enters the head itself and the jackets terminate in a broad exposure over the top of the integral crankcase itself, it would appear that the limit had been reached. Still we shall be far from our goal.

Constant Crankcase Temperature

For a truly efficient temperature modulating system, we cannot stop just with the cylinders. Any lubricating engineer will tell you that the ideal engine would also have constant crankcase temperatures.

Most of the additives, detergents and what not which have been placed in our motor oils are to fight the destructive effects of high crankcase temperatures. Most of the super-refinements of stock selection, blending and processing are for the purpose of improving the viscosity index of the oil—to maintain its consistency through the widest possible range of temperature.

One way of maintaining crankcase temperatures at least within hailing distance of water jacket temperature is by the use of oil heat-exchangers. That means lots of plumbing, however, and the results in road vehicles are hardly epochal. The idea is right, but the approach is wrong. Such temperature maintenance should be inherent in the design of the engine and not dependent upon afterthought gadgets.

All we have to do, then, is to keep on lowering the jackets until they surround the upper half—or more correctly, upper two-thirds of the crankcase and maybe extend across through the main bearing webs.

Then let us have a thermostat located in the cylinder head jacket where it is exposed to flowing water and let this control a hot-water by-pass and a variable-pitch or variable-speed fan and we'll be a lot closer to our goal.

Will these things come sooner or later? Later, I am afraid. Industry likes to creep ahead cautiously; but it does go forward.

Clutch and Transmission

Within the limitations of the conventional foot-operated friction clutch and selective transmission, a great deal has been accomplished. With the over-center spring and shifting synchronizers, just about the ultimate refinement will have been reached in some post-war designs.

But that will not be enough. Some tentative progress has been made toward automatic torque conversion in passenger cars—where the task is (TURN TO PAGE 148, PLEASE)

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AUTOMOTIVE INSTALLATIONS, FARM TRACTORS, HOUSEHOLD and COMMERCIAL REFRIGERATION, AIR CONDITIONING, OIL BURNERS, BOTTLED GAS, MACHINE TOOLS, INDUSTRIAL EQUIPMENT, ETC.



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THERMOSEALED DEHYDRATED COPPER TUBING

Both ends sealed to protect from dust, dirt, moisture, oxidation

Supreme quality tubing that successfully meets the most exacting requirements. Reaches you without flat spots, dents, kinks or variations in roundness and temper. Free from "burns," seams, laps, slivers or other defects.

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**99.8%
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Pipeline on Wheels



Keeps under control with

Thermoid BRAKE LINING

JOIN NOW!

Pledged
EX. S. TRUCK
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Custom-Built Brake Lining Sets • CBB Sets
Thermo-blocks for heaviest duty

THERMOID COMPANY • Trenton, New Jersey

A TANK TRUCK AND TRAILER, loaded to capacity with gasoline or light fuel oil, weighs approximately 30 tons. The Leaman Transportation Corporation, of Downingtown, Pa., operates exactly 100 such units through five Eastern states. Each unit travels about 50,000 miles a year—over mountainous territory, in all kinds of weather. Good brake lining is an absolute "must."

That's why the Leaman Corporation relies on Thermoid. Thermoid Brake Lining not only assures long wear, but has that extra margin of dependability so important in heavy duty service. Completely satisfied with Thermoid performance, the Leaman Corporation for the last seven years has equipped every one of its transports with Thermoid Brake Lining. In addition, it is a constant user of Thermoid Fan Belts.

Take a tip from Leaman—put Thermoid to the toughest test you can find in your own operation. You'll specify it for all your units. Thermoid is right the first time, and every time.

CALLING THE TURN ON TRUCKS TO COME

(CONTINUED FROM PAGE 146)

easiest—which will pilot the way for some practical adaptations to heavy vehicles.

With somewhat higher power-to-weight ratios to be confidently expected in future trucks, six or eight speeds will suffice with hand shifting, while five to seven will serve for automatic or semi-automatic transmissions.

The quicker, more positively and more timely the shifts are made, the fewer there need be. However, the range of ratios from the highest to the lowest must be in inverse ratio to the power of the engine.

Right after the war we will find that clutches and transmissions will be largely of the familiar pattern, but shortly after will come synchronized shifts, fluid drives and dual-ranged integral gearboxes in which the two ranges are in series and not overlapping as heretofore.

One of these arrangements will combine manual and automatic shifting to make the proper use of the gears in the largest trucks no more difficult than in a passenger car. I don't know enough about the details just yet to explain it, but it's well on the way.

Any time we care to we can have clutches that always operate smoothly, yet positively, never grabbing or slipping and requiring either no pedal at all or very light pedal or treadle pressure. These clutches also will have extremely long-lived linings and will never require adjustment.

The elements are all known and for all I know someone may put them together soon. If not it will probably be because the clutchless transmission appears before the improved clutch is ready. The principle is to combine with power operation high spring pressure and low-coefficient lining with an inertia and vacuum governor.

Drive

There appears to be no ground for expecting a revolution in final drive. It is a far cry from the day when the merits and demerits of worm vs. chain vs. internal gear vs. external gear, vs. double reduction vs. Hypoid drives formed the chief topics of discussion wherever trucks were discussed, to the comparatively mild interest lately shown in the rivalries between double- and -single- reduction and between auxiliary transmissions and two-speed axles.

The simple fact is that given sufficient power-to-weight ratio and a reasonably moderate engine speed, a transmission with a wide enough range of ratios and wheels of moderate diameter, the simple, single-reduction bevel gear offers the highest efficiency with lowest weight, least maintenance and lowest cost of any drive and it is only when vehicles are of such great weight that the maintenance of sufficient power-to-weight ratio becomes impractical that resort to multiple-reduction drives is warranted.

Unquestionably, until most buyers of trucks learn to judge trucks by objective characteristics instead of subjective specification, manufacturers will continue to supply a demand for complicated drives from users who have not yet learned that

(TURN TO PAGE 150, PLEASE)

FIRST-AID FOR TANKS "IN TROUBLE"



Front Winch Recovery Operation

Using 4-part line, single snatch block anchored at tank; double snatch block secured to object of recovery

"Tug-of-War" Champion

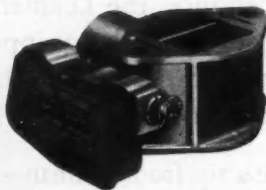
When they call out the "wrecking crew" to get tanks, artillery, supply tanks or other heavy equipment out of trouble, they look to Ward LaFrance for "the lift". The "big fellow" shown above is officially designated "Ward LaFrance Heavy Wrecking Truck, M-1". It weighs over 15 Tons.

One reason for Ward LaFrance Trucks' rugged endurance on the tough jobs they have to do, is

the Hoof Full Power Governor which conserves the power plant without restricting its tremendous power.

While military applications such as these are properly given first call, Hoof Full Power Governors are also available, under existing regulations, to members of the transport industry.

Send today for your copy of the Free Booklet, "Everything Under Control" and the name of your nearest Hoof Jobber.



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THESE, TOO, ARE EAGLES...

America and the world can never forget the tremendous contribution Trucks and Truckers have made in giving the United Nations the undisputed air supremacy enjoyed today on every front ★ That the great majority of this essential hauling was accomplished by an overburdened, undermanned Motor Transport Industry speaks volumes not only for the men who engineered the task but for the ruggedness of American equipment ★ Although there has never been a question of their ability to come through, it has been an honor for Bendix-Westinghouse Air Brakes to have served, both men and equipment, so faithfully throughout this emergency. In this

service, both civil and military, the safe, dependable, economic performance of this "World Standard of Safety" was never more conclusively proven ★ If you have a control problem, may we suggest that there is no better time to see your Bendix-Westinghouse Distributor who will be happy to confer with you, without obligation. It's a coast-to-coast service maintained in the interest of better, safer, more economical transportation, by the two greatest names in braking.

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AIR BRAKES
AND PNEUMATIC CONTROL DEVICES



IT IS SIGNIFICANT THAT AMERICA'S FINEST MOTOR TRUCK FLEETS ARE EQUIPPED WITH BENDIX-WESTINGHOUSE AIR BRAKES

CALLING THE TURN ON TRUCKS TO COME

(CONTINUED FROM PAGE 148)

gears absorb, but never produce, horsepower.

There have been indirect-drive transmissions in trucks before and there may be again, just as there are today in most transit type buses. These may in time be used to produce a primary reduction which will permit single-reduction bevel drives of

moderate ratio with a much-to-be-wished-for slowing down of drive-shaft speed.

The present ascendancy of Hotchkiss drive is probably permanent, now that the shock-reducing elasticity which it imparts to the drive is more generally understood.

(The final instalment of this article will appear in the August issue.)

END

(Please resume your reading on P. 54)

SALVAGE HEAPS HELP ARMY TRUCK REPAIRS

(CONTINUED FROM PAGE 63)

service maintains vehicles belonging to the Navy, Marines, Coast Guard and Lend-Lease.

Usable parts are sorted out by officers and sent to checking points throughout the ordnance establishment for eventual reissue to the various echelons of maintenance and depots. In one month, one of the segregation centers shipped 13 loads (1½-ton vans) of general purpose (not combat) vehicle parts. This is considered above the average, but is a representative example. Wrecked assemblies are broken down to obtain all parts that possibly can be reconditioned and reused.

From this point on, the overseas material becomes so inter-twined with salvage operations in the United States that it is best to consider them as one.

Army Ordnance men say that there is a distinct problem in disposing of non-functional parts accumulated in the breakdown of damaged vehicles. Manufacturers do not want them and since, in many cases, there are more of them than can be used by the Army, they must be sold for scrap. Much material also is scrapped because the cost of reclaiming it would be more than the cost of procuring new material.

When Army Trucks are issued originally, they are generally accompanied with enough parts, tools and special equipment, to keep the vehicles in operation a full year. In this way, an officer who receives a consignment of trucks knows that the ordnance warehouse nearest the point of issuance of the truck has received equipment necessary to keep the truck in running order. Reclaimed and reissued parts are added to these stocks and issued to any branch of the Army, within that area, requesting such material.

Records are kept of all parts and equipment, and are made available to the headquarters of all Service Commands. Reports of parts requirements now are based on actual consumption, rather than issuance, resulting in large savings and cutting down oversupply in many cases.

To aid officers in the segregation of all parts, lists of critical and ex-

(TURN TO PAGE 152, PLEASE)

Teleoptic


KEEPS 'EM ROLLING SAFELY!

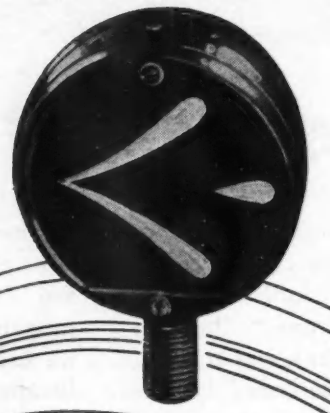
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**See what the Teleoptic
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1. It can be seen from all angles, DAY or NIGHT, at 125 feet!
2. It is approved by ALL STATES requiring directional lights.
3. It was designed to stress *Protection* rather than price.
4. Guaranteed against all defects — integral construction — pedestals screw on, with less chance of shear.
5. Ground glass lenses.
6. 180° visibility.
7. Easily installed.
8. Finger tip switch control—3 types available for extra convenience.
9. A limited number of sets available without priorities for installation on trucks not previously equipped.

3 Types of Switch Controls








On the Highway it's
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The TELEOPTIC Company

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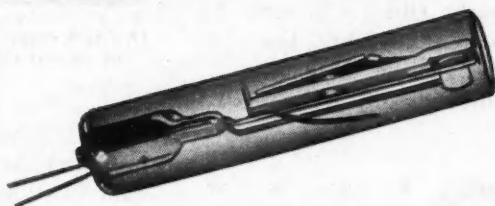
In the Air it's
Sel-air

THE LITTLE GIANT

that puts the "Push" in

STEWART-WARNER

ELECTRIC FUEL PUMPS



It's Exclusive!

**Stewart-Warner Contact Points
are Sealed in a Hydrogen-Filled Tube**

• Here's an exclusive feature only Stewart-Warner Electric Fuel Pumps can give you! Sealed in a hydrogen-filled tube the contact points assure constant positive pump action because they won't burn, won't stick or pit. The hydrogen in the tube keeps the points cleaned automatically. Operated and controlled magnetically. Carries famous Underwriter's Laboratories' seal.



**DELIVERS
13 GALLONS
PER HOUR**

Available Now! The Traffic-Tested **STEWART-WARNER ELECTRIC FUEL PUMP** Ends Vapor-Lock and Fuel Pump Failure

THERE'S no time nor place today for delays due to vapor-lock and fuel pump failure. This is no time to risk losing irreplaceable equipment because of fire. Every truck is a vital unit in the battle of transportation.

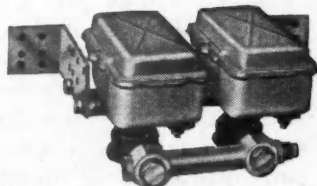
That's why truck owners are installing Stewart-Warner Electric Fuel Pumps, either as replacements or as auxiliary "safety" pumps for heavy-duty operation.

This pump is easily mounted at the tank. It *pushes* fuel to the carburetor under pressure, eliminating air bubbles and vapor-lock.

No rotating parts, no piston, no bearings to fail. Requires no attention. Lasts longer because it doesn't "beat itself to death." Delivers 13 gallons an hour on less than one ampere of current.

A special diaphragm of DUPONT FAIRPRENE *simply won't* fail. The contact points sealed in a hydrogen filled tube ends fire hazard. Thus the pump is listed by Underwriter's Laboratories.

Write today for complete information. Stewart-Warner Corporation, 1876 Diversey Parkway, Chicago 14, Illinois.



Use Stewart-Warner Dual Electric Fuel Pumps where gas consumption is high—gas mileage lower than average. Dual pumps more than double the life of each pump. Can be installed so that each pump operates independently.

STEWART-WARNER **ELECTRIC FUEL PUMP**

STEWART-WARNER CORPORATION

* * * * *



SALVAGE HEAPS HELP ARMY TRUCK REPAIRS

(CONTINUED FROM PAGE 150)

cess items are issued. Critical items are used until they are no longer of any use, while excess items do not get beyond the third echelon; fourth and fifth echelon repair shops do the heaviest type of work, including complete overhauling and rebuilding of vehicles.

Army Ordnance is repairing and

rebuilding about 70,000 automotive vehicles a year by a new line production method used in fifth echelon motor shops in this country. Only about one per cent of these are automobiles. The remainder are trucks and heavier vehicles.

There are 10 of these shops. They are located at Fort Devens, Mass.; New York; Richmond, Va.; Atlanta, Ga.; Newark, Ohio; Chicago; Topeka, Kan.; Camp Mabry, Tex.; Los Angeles and Tacoma, Wash.

The mammoth Mt. Rainier Ord-



Ordnancemen repairing a truck engine in one of the Army salvage depots

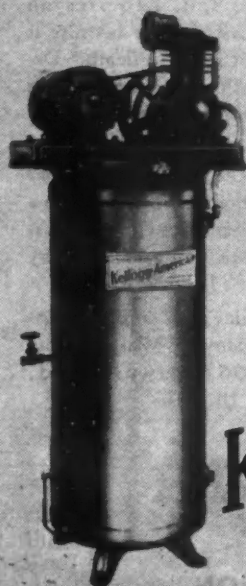
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**KELLOGG-CROWN
"25"**



Here's a spray gun that feels right—and *is* right; and it's built to take it. Easily-accessible, easily-operated precision controls—non-tiring, free-swinging balance. For better, more profitable finishing, look into the Kellogg-Crown line of paint spray equipment. For *the most air per dollar*, your choice will swing to a Kellogg-American air compressor—built for hard work, long life, low operating cost.



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COMPANY

Kellogg Division, Rochester 9, New York

AIR COMPRESSORS • PAINT SPRAY EQUIPMENT • CAR LIFTS • CAR WASHERS

nance Depot at Tacoma, for example, keeps all Army vehicles in the Pacific Northwest and Alaska in excellent operating condition. The automotive repair shops occupy eight acres of floor space, employ 600 civilian mechanics and turn out, among other things, some 600 vehicle overhauls, 800 rebuilt engines, 500 transmissions, axles and transfer cases, and more than 4000 minor units each month.

Into the Mt. Rainier depot come disabled vehicles of every type, many of which have been wrecked from the heaviest kind of service along Alaskan highways. These vehicles are completely overhauled and repainted, and roll forth to be reissued for supply and training of new units in the United States.

In this recovery operation, the greatest possible use is made of rebuilt assemblies and reclaimed parts. Nothing is wasted that can be put to economical use.

Incoming engines are steam cleaned, placed in wooden cradles, and hoisted to a knee-high rollerway production line. Mechanics then dismantle them. They strip off every bit of "jewelry," as they call the external gadgets comprising the electrical and carburetion system, the springs, valves and tubing. In a short time, only the bare block remains.

Every removed part goes into a stockpile of parts of that type for salvage inspection and reclamation, if at all possible. Along the assembly line are small departments that specialize in making these essential parts new again. If undamaged and unworn, they are cleaned to new brightness, oiled, labeled and put into stock.

Technicians with micrometers measure carefully the cylinder walls
(TURN TO PAGE 154, PLEASE)

MARGIN of Victory

The march of important national events has sometimes been determined by the narrowest of margins. For instance, the impeachment proceedings of Andrew Johnson, 17th president of the U. S., resulted in his acquittal by the slim margin of **ONE VOTE!**

But it takes more than a close decision to create a yardstick of preference in Truck and Bus equipment. Such equipment must star—by the **WIDEST** of margins. No wonder **YANKEE** leads the field!

YANKEE

MARGIN of Quality

Yankee automotive devices have always had that **EXTRA** margin of Quality—enough to make them winners and therefore the standard of acceptance. Their rugged "stay-ing qualities" have made them tops at the pay-off.

YANKEE

MARGIN of Safety

Fleet Operators and the "pilots of the road" know the value of a safe haul. Rigidly controlled scientific testing of Yankee Products by Yankee Engineers and then by recognized reputable testing laboratories has always given Yankee merchandise that **EXTRA** margin of safety so important these wartime days. No wonder the man behind the wheel says "You're safe when you can see or be seen with Yankee Safety Devices."

*From ANY angle..
By a WIDE Margin..*

it's

TRADE MARK
YANKEE
REG. U. S. PAT. OFF.

all the way!

FOG LAMPS • MARKER LIGHTS • SIDE-VUE MIRRORS • REFLEX REFLECTORS
STOP LIGHTS • TAIL LIGHTS • DOME LIGHTS • DIRECTIONAL SIGNALS

ASK YOUR JOBBER SALESMAN

YANKEE METAL PRODUCTS CORP., NORWALK, CONN., U. S. A.

TRADE MARK
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*Approved**

DIRECTIONAL SIGNALS

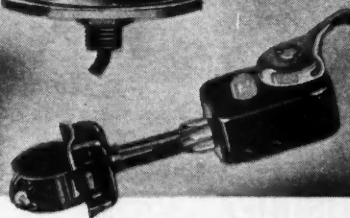
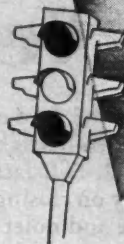
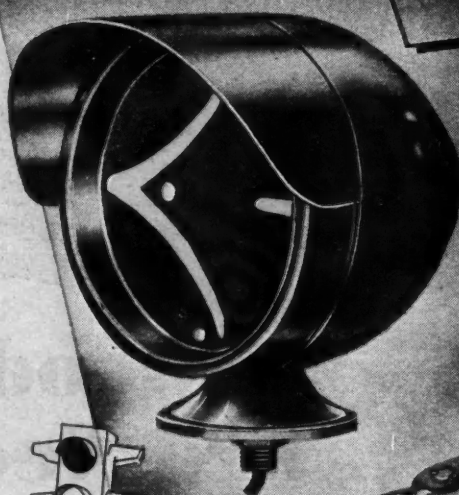
For Trucks and Buses

TESTED AND PASSED BY THE ELECTRICAL TESTING LABORATORIES OF NEW YORK

Specifications conform to all safety requirements laid down by the Safety Equipment Manufacturers Association. All electrical parts and connections meet with S.A.E. and I.E.S. requirements.

Yankee Directional Signals are smartly packaged and delivered ready for simple installation. Heavy gauge non-corrosion steel construction makes them real "toughies".

* Approved in all states requiring approval.



SWITCH UNIT—Completely enclosed pilot light, relay, fuse and wire leads. Adjustable for easy mounting to any size steering wheel.

SALVAGE HEAPS HELP ARMY TRUCK REPAIRS

(CONTINUED FROM PAGE 152)

of the engine block to determine if a reboring job is required. The engine is then built up again with either new or reclaimed parts, crankshaft, pistons, connecting rods, valves, springs, bearings. Then all the outside "jewelry" is added, and the rebuilt engine is carefully tested.

Component parts of vehicles other than engines are reclaimed in similar manner, being disassembled, cleaned and moved to particular departments, specializing in the particular types of assemblies. Front and rear axles, transmissions and transfer cases are rebuilt on special jigs and are tested against load. Radiators of all types from jeeps to General Sherman tanks are recovered in the radiator department which turns out approximately 900 finished units a month.

Another interesting subdivision

is the battery shop where 1000 batteries a month are rebuilt on a miniature production line.

The work performed at the Mt. Rainier depot is duplicated in the nine other shops, all of which are under the control of the Ordnance Department, Army Service Forces.

Spare Parts Scarce Overseas

Reports on repair operations in foreign theatres are meager. In the China-Burma-India theatre, officers report that Army Ordnance automotive spare parts today are more precious than rubies, and the market price of any American-made mechanical device is fantastic. These regions in the Far East are starved for machinery of any kind. Industrial equipment and spare parts must be shipped into the China-Burma-India theatre from the United States and other allied countries and are highly treasured.

According to reports received from Col. George W. Outland, an Ordnance officer recently returned to this country from Lord Mountbatten's headquarters, Army Ordnance troops are doing a magnificent job in a vast battle theatre that stretches across northern India to Generalissimo Chiang Kai Shek's headquarters in Chungking.

The Ordnance Department is supplying three major combat units in the Far East—American ground forces, Chinese ground forces, and the American Air Force—with all types of armament, ammunition and bombs. It also is charged with the responsibility of maintaining and repairing the fleets of ordnance trucks that are daily hauling supplies over the Ledo road. Automotive maintenance work on this new supply route from India into China involves everything from replacing broken windshield wipers to complete engine overhauls.

Spare parts must be shipped half way around the world from ordnance depots to busy supply points in India. In this way it is possible that parts salvaged from the European theatre and reconditioned in the United States eventually might be used in the struggle against the Japanese.

The demand for parts is great because of the primitive conditions prevailing in this little-known part of the world and because of the difficult

(TURN TO PAGE 156, PLEASE)

Use Barcol OVERdoors



...where
**Good Doors
are Needed...**



OVERdoors
Electric Door Operators

Check the advantages of the 4 outstanding features of Barcol OVERdoors — 1. Weathertight, rattleproof closing without sticking or binding. 2. Self-latching, with spring bolts which engage automatically on closing. 3. "Twin Torsion" balance springs that are safe and quiet with a neat, compact appearance. 4. Continuous vertical track brackets that are more rigid, and conceal and protect the cables. *Other doors have some of these features, but no other door has all of them.*



The pictures show a truck fleet garage with seven doors approximately 18 feet wide and 10 feet high. Barcol OVERdoor quality and features mean long and trouble-free life under severe service conditions.

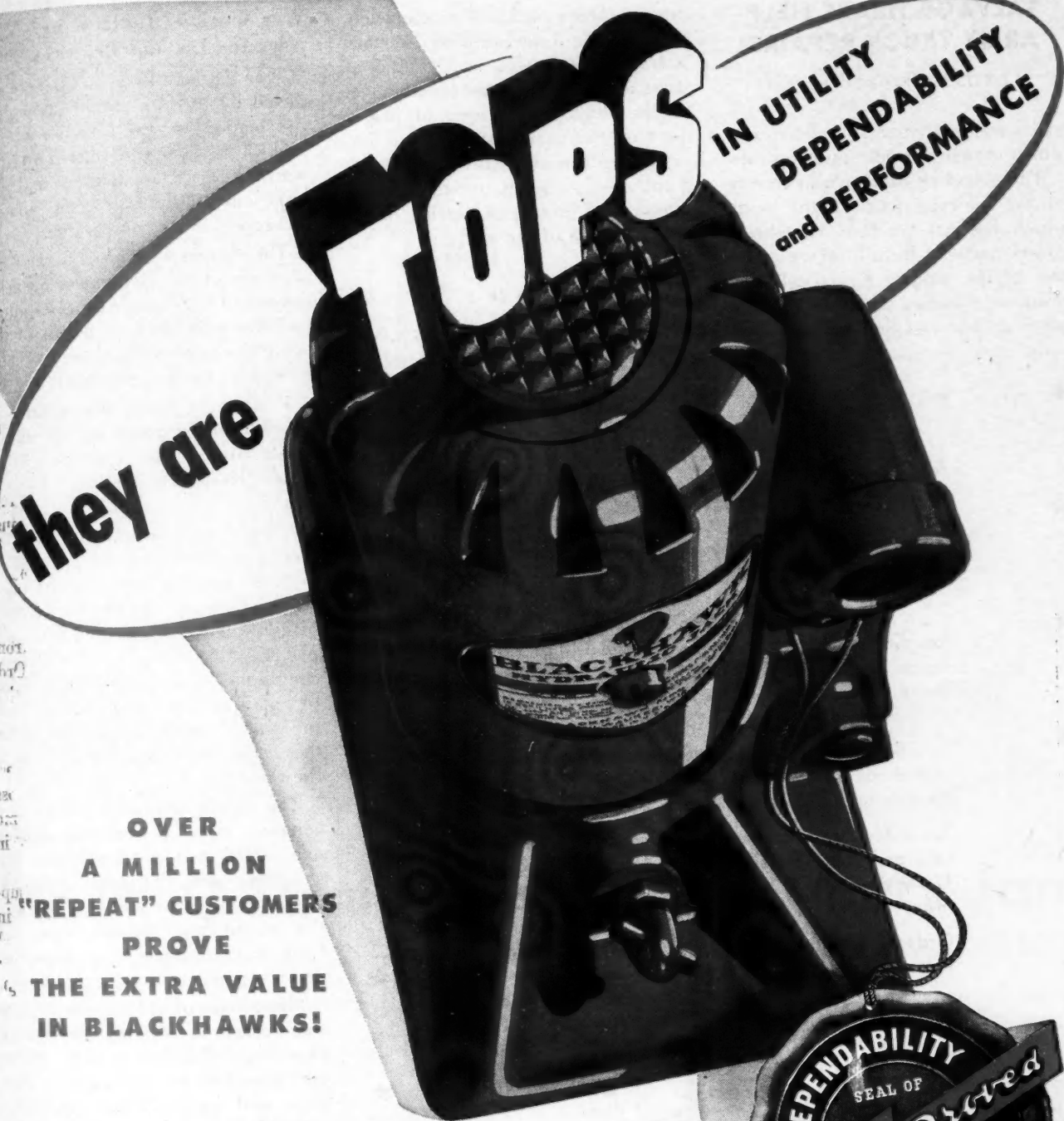
The Barcol OVERdoors on this fleet garage are chain-hoist operated. Note the neat, trim appearance of the overhead tracks and mechanism.

FACTORY-TRAINED SALES and SERVICE REPRESENTATIVES IN PRINCIPAL CITIES

BARBER-COLMAN COMPANY

118 MILL ST.

ROCKFORD, ILL.



they are

IN UTILITY
DEPENDABILITY
and PERFORMANCE

OVER
A MILLION

"REPEAT" CUSTOMERS
PROVE
THE EXTRA VALUE
IN BLACKHAWKS!

OVER a million Blackhawk Jack owners are "repeat" customers!
When they need a jack they buy Blackhawk!

Blackhawk Hydraulic Jacks have won and held first place by giving jack users more for their money! They are "tops" in design, precision, utility and dependability!

And, because they are built by the world's largest manufacturer of hydraulic equipment, Blackhawk Jacks give you *extra* value — gained from extra experience.

When you need a jack—buy the best—buy Blackhawk—from your Blackhawk jobber!

A Product of BLACKHAWK MFG. COMPANY, Dept. J1174, Milwaukee 2, Wisconsin



This seal is found ONLY on
BLACKHAWK HYDRAULIC
JACKS — your assurance of a
wise and safe investment.

BLACKHAWK



SALVAGE HEAPS HELP ARMY TRUCK REPAIRS

(CONTINUED FROM PAGE 154)

and punishing mountain terrain over which ordnance trucks must operate.

The pounding which trucks receive in the forward part of the road, which has not yet been completed, causes many of them to crack under the terrific strain. Fortunately, an ordnance welding shop is able to patch up many of these damaged ve-

hicles. Those which are completely wrecked are turned over to ordnance salvage experts who usually find at least a few parts to use on other vehicles which are in need of just a part or two to be serviceable.

And so this cycle of issue, use, repair, salvage, scrap, reclaim, recondition, and reissue is carried on in every theatre of the war.

END

(Please resume your reading on P. 64)

When it's Brake Materials WISE OWNERS ORDER "MILEY"

... Because commercial cars and trucks MUST keep going ALL THE TIME ... and MILEY has made sure that fleet operators have brake materials when they need them—post-war in quality—faster in delivery.

... Because Man-power can be saved—and cars pulled out of shops faster—with MILEY Exchange Service or Ready Lined Brake Shoes.

The Miley Line is the Complete Line: Brake Linings, sets and rolls—Shoes, lined and unlined—Brake Cylinders—Clutch Facings—Fan Belts. Ask your Miley Jobber.

Order Black Gold and Ebonite—Standards for Better Lining as well as Better Service.

"The Brake People"
BRAKE LINING · BRAKE SHOES · BRAKE PARTS
L. J. Miley Company, Inc.
1060 W. Adams Street Chicago 7, Ill.

War Workers Indicted by AAA for Driving Practices

War workers as a group were indicted by the American Automobile Association for reckless use of the highways, complete disregard for wartime speed regulations and for notorious indifference to any and all measures of car conservation.

The charges were made in the form of a report to government agencies concerned with motor transportation, and was submitted on behalf of the AAA Executive Committee by Thos. P. Henry, Detroit, president.

Facts upon which the report was based were obtained on the initial swing around the country of the AAA "Keep 'Em Rolling" Demonstration.

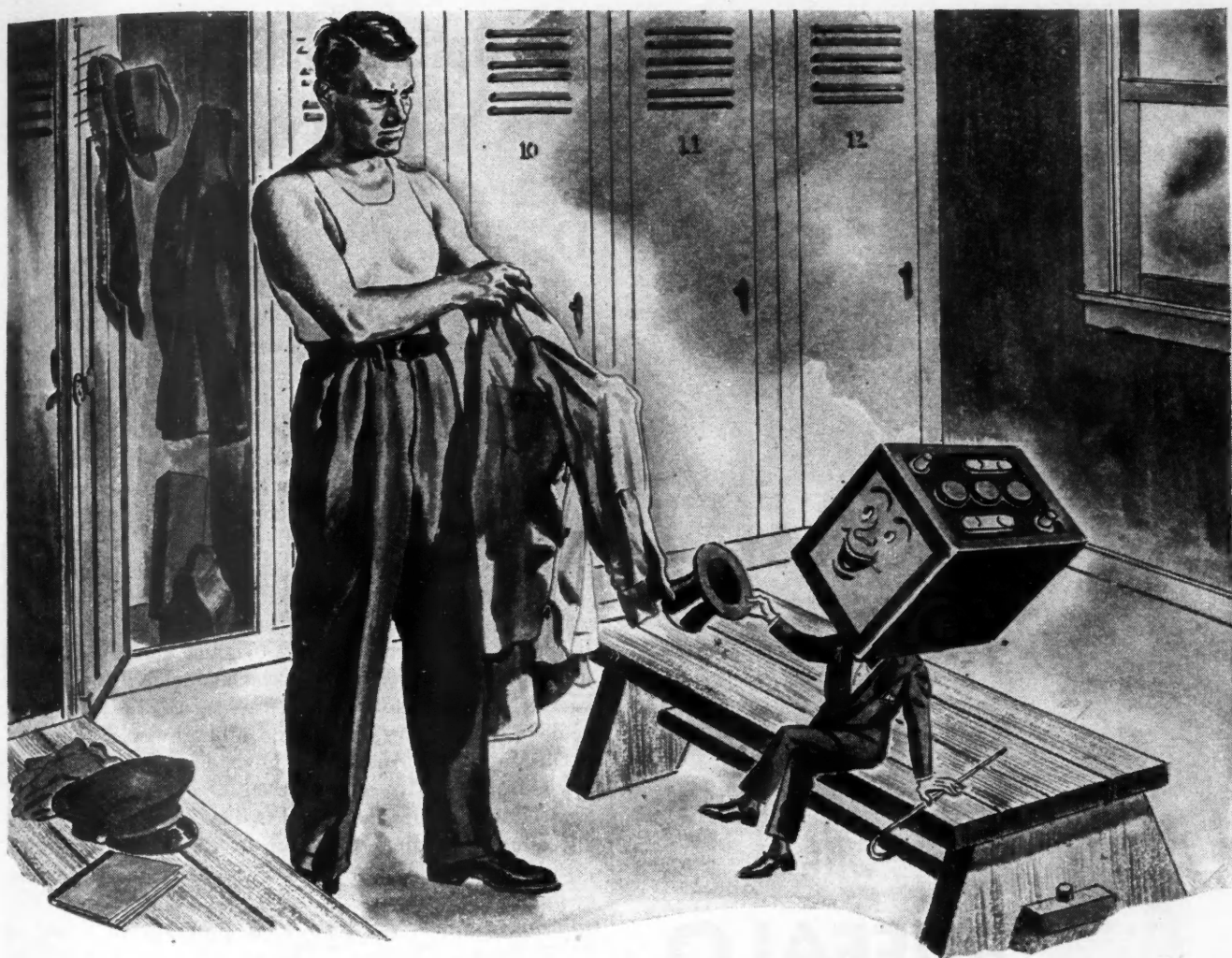
"The worst driving conditions, the most reprehensible driving practices, and the greatest disregard for conservation were noted on the stretches of highway leading to and from war plants," Mr. Henry said. "Driving conditions near war-essential factories are so bad," that in many cases the general public is reluctant to use the same roads because of risk to life and limb."

The report described wrecks as a common sight in roadside ditches, and stated that road surfaces and shoulders are cluttered with the jagged remains of bottles, dashed to the ground from speeding cars, and lying ready to ruin some unsuspecting driver's precious tires.

"Hundreds of thousands of these war workers are driving cars for the first time," Mr. Henry said. "They are accorded top priority in cars, tires, and gasoline and apparently proceed on the assumption that they have a divine right to replacement if a car is demolished or a tire destroyed.

"This flagrant disregard of conservation cannot be tolerated any longer," he concluded, "especially since it constitutes a glaring abuse of privilege at a time when denials and restrictions are being imposed on the rest of civilian motor car owners."

In describing the Federal speed limit of 35-miles an hour as a complete failure, the report said that it was violated by all classes of vehicles—passenger cars, buses, trucks, state-owned cars, and cars owned by the military services.



Mr. Hi-Q Straightens Out a Battery Jam

Mr. Hi-Q: You seem to be in somewhat of a jam. What's the trouble?

Mr. Bus Operator: It's battery trouble again. My batteries aren't standing up.

Mr. Hi-Q: As a representative of each manufacturer's highest quality batteries, may I ask if you are buying top-of-the-line batteries?

Mr. Bus Operator: But those high quality batteries are too expensive.

Mr. Hi-Q: On the contrary, sir, they'll cost you less per mile. True, they are slightly higher in first cost, but in the long run they save battery grief and lower your operating costs.

Mr. Bus Operator: How come all that?

Mr. Hi-Q: First of all, top-line batteries are better made all the way through. They have stronger plates, better separators, heavier cases. Generally, they're equipped with Fiberglas* Retainer Mats.

Mr. Bus Operator: What have those mats to do with battery performance?

Mr. Hi-Q: Standard tests show that they greatly reduce battery failures formerly traceable to shedding of power-producing material from the positive plates.

Mr. Bus Operator: That sounds pretty good.

Mr. Hi-Q: Yes, sir! Tests show that batteries equipped with Fiberglas lasted up to twice as long as the same batteries without these mats.

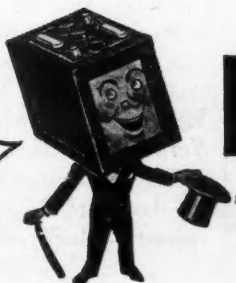
Mr. Bus Operator: You're a pal, Mr. Hi-Q, from here on it's only top-of-the-line batteries for me.

Mr. Hi-Q: Remember, your regular distributor can supply you with Fiberglas-equipped batteries. Get in touch with him, today.

Owens-Corning Fiberglas Corporation,
1960 Nicholas Bldg., Toledo 1, Ohio;
in Canada, Fiberglas Canada, Ltd.
Oshawa, Ontario.



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BUY THAN THE BEST
BATTERIES—
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BATTERY RETAINER MATS



FIRE PROTECTION
...must not fail.



Safeguard your
ROLLING STOCK
 with

BUFFALO
"VL"
Extinguishers

- The design and construction of Buffalo "VL" (Vaporizing Liquid) Fire Extinguishers are dedicated to truck and bus conservation. Here's your guarantee of instant, dependable control of all types of blazes

encountered in motorized transportation. These husky extinguishers are built to withstand highway jolts—the wear and tear of daily driving. Every driver is an on-the-spot fireman with a Buffalo "VL" at his fingertips. The Underwriters' approved extinguishers are sold by leading automotive jobbers everywhere.

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Better
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Optimism Grows on Truck Production

DESPITE many pessimistic reports concerning the 1944 commercial truck program, an exclusive interview with John H. Middlekamp, WPB Automotive Division director, revealed a feeling in WPB that production would more than meet already set goals and, as Mr. Middlekamp phrased it, the program is in a state of "planned acceleration."

For example, commercial truck production in May was more than 9200 vehicles of all sizes, as compared with a total output of about 10,000 in the entire first quarter, and practically none in the same month in 1943.

Even more surprising, in view of reports that the 1944 program would be about 25 per cent off, is the news that the Automotive Division has been able to increase the original program for commercial use about 8000 vehicles. It will be remembered that the original quotas established in January called for 89,678 vehicles for civilian purchase broken down as follows: medium, 64,271; light-heavy, 15,380; heavy-heavy, 8568; and off-highway, 1459.

On May 6, the Automotive Division took 8111 medium trucks from the FEA allocation on the grounds that domestic need was greater than export. This brought the civilian allocation of medium trucks up to 72,382. A further adjustment was made when 300 trucks were taken from the medium category and added to the light-heavies. This adjustment leaves the total 1944 program at a total of 97,789 trucks. Of these 72,082 are medium; 15,680 light-heavy; 8568 heavy-heavy; and 1459 off-highway.

All of the officials contacted by COMMERCIAL CAR JOURNAL were confident that this expanded program would be met, with the possible exception of the heavy-heavy category. Mr. Middlekamp said that heavy trucks are now causing the most serious problem, and that axle production was the most serious problem in the entire program.

However, the biggest bottleneck at present is the situation in castings, malleable and gray iron, particularly. The situation in aluminum castings is more satisfactory. This shortage ties up production of axle housings, blocks, heads, and other components. It was learned from other sources that it is this situation which is raising doubts that the heavy-heavy truck program will be met in the final months.

Vigorous steps are being taken in WPB to ease the casting problem, which is causing grave concern in many WPB programs. The chief cause of the production drop is the lack of trained help, which results in an abnormally high rate of rejects.

On June 9 WPB announced the creation of a National Foundry and Shop Forge Committee, representing five federal agencies directly concerned with the critical manpower problems that are hindering production in foundries and forge shops. The committee is jointly headed by W. B. Murphy, WPB Deputy Vice Chairman for Production, and Vernon A. McGee, Deputy Executive Director, WMC.

The function of the committee will be to serve as a clearing house to deal with obstacles standing in the way of recruiting badly needed manpower for the industry and

(TURN TO PAGE 162, PLEASE)



HOW Pan American Airways PACKS 2,100 HOURS INTO A DAY

THE minute the giant transatlantic Pan American Clippers get back to their base, they get an exhaustive go over.

It's thorough. And it's fast.

A swarm of mechanics, working in eight-hour shifts, get the job done in 60 hours—2,100 man-hours a day.

What helps this swift turn-around are Elastic Stop Nuts. These nuts have been on every Pan American Clipper since 1928. They are on motors, mounts, wings and countless structural parts.

Particularly timesaving are the Anchor Nuts which permit smooth blind mounting. Hundreds of these fasten the covers for inspection openings. These Anchor Nuts* are an Esna development and are used by millions in all kinds of airplanes.

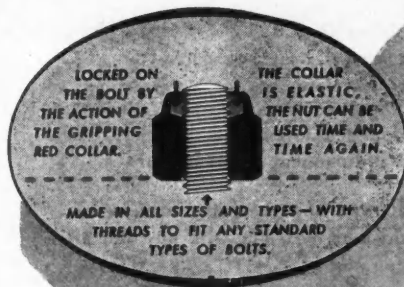
Elastic Stop Nuts lock tight and fast without any auxiliary devices. There's no time wasted in fussing to get them off and back on again.

They lock because of the elastic collar in the top. This collar squeezes in between the bolt threads. It's compressed tight. The nut can't turn. It can't wiggle. It can't shake loose. And you can take it off and

put it on again many times and it still locks.

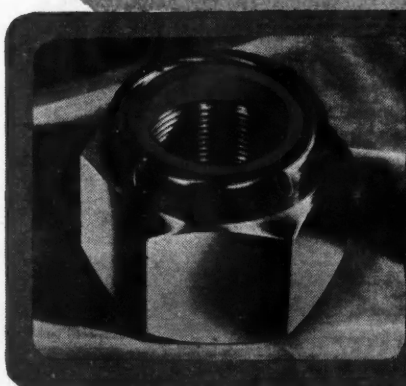
Every fastened product can be better because of these nuts—can be safer, tighter, quieter, and longer lasting.

So if you have a fastening problem now, or see one ahead, let us show you how these red-collared Esna Nuts can help. Our engineers are ready to consult with you and recommend the appropriate nut.



The Clippers' powerful engines are equipped with Elastic Stop Nuts. Overhauling is simplified by the absence of pins, washers, or other auxiliaries.

*ESNA Anchor Nuts allow ready access to inspection openings, yet refasten tight and strong to carry stressed skin loads.



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OF AMERICA

ELASTIC STOP NUTS

Lock fast to make things last

UNION, NEW JERSEY AND
LINCOLN, NEBRASKA

OPTIMISM GROWS ON TRUCK PRODUCTION

(CONTINUED FROM PAGE 158)

also to undertake all necessary measures to remove production obstacles. The national and field staffs of WPB and WMC have been instructed to give full cooperation to the new national committee.

Mr. Murphy and Joseph D. Keenan, Vice Chairman for Labor Production, WPB, another commit-

tee member, have again emphasized the fact that the output of critical foundries and forge shops is now the nation's number one production problem. Mr. Murphy pointed out that severe difficulties are now being encountered in meeting of production schedules of such items as heavy-heavy trucks, as a result of the lack of components needed from the foundry and forge shop industry.

In regard to replacement parts Mr. Middlekamp said that there are more parts being produced now than

ever before in history, and that all emphasis has been placed on procuring more parts. Parts not now in current production are causing the most serious difficulties. Increased parts procurement is now resulting from increased facilities, due to military production cutbacks.

In reference to parts not now in current production Mr. Middlekamp has told the gray iron casting industry advisory committee that the automotive division realizes that short runs of different types of cylinder block and cylinder head castings are placing an additional burden on the foundries. He emphasized that these are the most critical castings limiting the production of engines needed for heavy trucks. Mr. Middlekamp said that if foundries are unable to fill the monthly demands of truck manufacturers for these castings, advance notification should be given so that a solution could be worked out and engine scheduling maintained.

A committee member later called attention to the fact that some companies have discontinued the rebuilding of old engines, necessitating the scrapping of the old engine and the purchase of a new one, a procedure wasteful of materials, facilities and manpower. The automotive division is seeking the restoration of rebuilding lines in plants which formerly offered this service, Mr. Middlekamp pointed out, but the large companies have taken the position that manpower cannot be spared from the demands of new production. However, a national survey in progress for some time indicates a large increase in the number of small plants engaged in rebuilding engines. The division will also continue its efforts to restore rebuilding facilities in large plants, Mr. Middlekamp said.

Automotive division officials also told COMMERCIAL CAR JOURNAL that trailer demands are largely being met. The only serious problem that came up in this connection was the reluctance of smaller producers to make trailers until they had orders for them, but this problem is rapidly being solved.

WPB is also giving much thought to the proposed 1945 civilian truck program. ODT's program for 1945 as of mid-June was for a total of 773,935 trucks. About 471,000 of these are medium, light-heavy, and

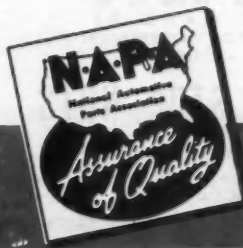
(TURN TO PAGE 164, PLEASE)



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1. Its boiling point is higher than any other brake fluid on the market. That means heat resistance, no loss, maintenance of correct viscosity.
2. It saves rubber. It has been tested and recommended by leading rubber and aeronautical manufacturers.
3. It is made from a patented non-gumming, all-miscible base—it's the only fluid that will mix with any and all other fluids.
4. It meets the most severe automotive and aeronautical requirements regarding pour-point, action on metals, etc. Less service layups, longer life to parts, saving on maintenance.

It's an aircraft quality fluid for trucks, busses, fleets, severe operating conditions.



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The Fighting Heart of a Dayton Thorobred!

In every battle-proved Dayton Thorobred Tire you will find a fighting heart. It is a mighty combination of synthetic rubber and super-strong heat-resisting Raytex Cords. They are welded by a special Dayton process into an inseparable union that takes the stress and strain of life-threatening road shocks, impacts and heat.

Mile hungry as an army transport, these synthetic rubber and Raytex Dayton Thorobreds are especially built and reserved for Uncle Sam—with limited quantities available for essential over-the-road bus and fleet needs.

What you get in these Dayton Thorobreds is the "heat-fightinest" blend of synthetic rubber and Raytex Cord that ever swallowed a thousand road signs and looked for more.

Their big rugged carcasses are fortified with Raytex Cord. This Dayton

processed rayon cord is (1) more resistant to heat. (2) It generates less heat because it's lighter and more resistant to flexing. (3) It retains its strength at high road temperatures.

These Dayton Thorobreds have a fighting heart of Raytex Cord that's high in tensile strength and engineered to distribute the load throughout their carcasses. Result, they withstand impacts and resist blow-outs!

A million dollars in the wrong hands couldn't buy these Raytex fortified Dayton Thorobreds—but they are available to you in limited quantities for essential over-the-road service.

THE DAYTON RUBBER MFG. CO.
Co-operators of
a Government Synthetic Rubber Plant
DAYTON 1, OHIO

MAINTAIN VICTORY SPEEDS—CONSERVE YOUR TIRES

* Dayton Processed Rayon Cord

Tires by Dayton Rubber

The Mark of Technical Excellence in Synthetic Rubber

OPTIMISM GROWS ON TRUCK PRODUCTION

(CONTINUED FROM PAGE 162)

heavy-heavy vehicles, while the remainder comprise a light truck program which ODT hopes to get started.

While Automotive Division officials would not say whether this program would be granted or rejected, due to the intangibles in current military operations, they emphasized that ODT's program was very ambitious and would exceed normal production because of the large number of heavy vehicles included. It is this emphasis on heavy vehicles that has led some officials to believe the program will be pared considerably.

Industry circles report that the 1945 first quarter ODT program calls for 40,000 medium trucks, 13,000 light-heavy, and 3300 heavy-heavy; plus 40,000 light trucks.

Meanwhile, in early June WPB began discussing problems arising in connection with truck production in the first quarter of 1945 with the Motor Truck Industry Advisory Committee. The expanded committee represents every segment of the motor truck manufacturing industry in the United States.

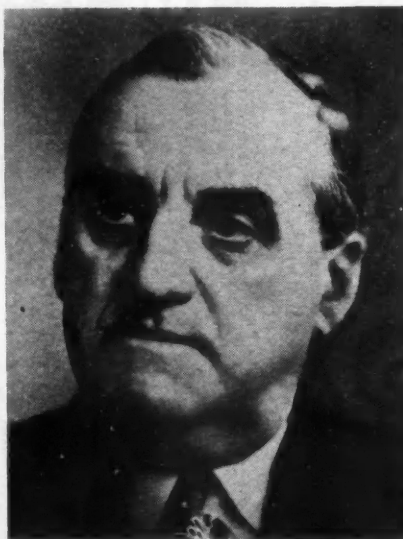
The committee was informed by Mr. Middlekamp that tentative plans for first quarter production are to continue at a high rate, closely following the program for the final quarter of this year. He said that the essential planning problem was to set up the 1945 program on the high 1944 production rate in order to preserve truck production facilities. This would indicate that, barring any setback in the invasion of Europe, ODT's request might not be pared as much as has been rumored.

The committee has approved an Automotive Division proposal designed to assure that smaller manufacturers of medium trucks will be assigned quantities for manufacture sufficient to permit economical operation of production lines. Because total planned production of medium trucks calls for production of approximately half a normal year's production, WPB officials said that an allocation on an historical basis would result in smaller manufacturers receiving uneconomically small quantities.

The committee approved a WPB proposal that an "adjustment" pool should be set up by deducting 5 per cent of the total assigned to smaller manufacturers by the Automotive Division in such a way as to avoid hardship.

Barnard's Nomination to ICC Will Be Confirmed

Consideration of the Presidential nomination of George M. Barnard, Republican member of the Indiana Public Service Commission, to succeed the late Joseph B. Eastman as



George M. Barnard

a member of the Interstate Commerce Commission has been delayed by the Senate Committee on Interstate Commerce until Mr. Barnard recovers from injuries suffered in an automobile accident. Mr. Barnard was taken to a hospital in New Castle, Ind., his home town. Senator Burton K. Wheeler, Chairman of the Committee, told COMMERCIAL CAR JOURNAL that it would probably be late in June that the Committee would meet to pass on Mr. Barnard's nomination. Indicating that Mr. Barnard would get quick committee approval, the Senator declared that he knew of no opposition to appointment and thought Mr. Barnard's nomination would receive Senate confirmation.

President Roosevelt sent the name of Mr. Barnard to the Senate on May 31, after Democratic Governor Henry F. Schricker, of Indiana, had recommended to Robert E. Hannegan, chairman of the Democratic National Committee, that Mr. Barnard be appointed to the ICC for the term expiring Dec. 31, 1950. Since the ICC already has the legal limit of

six Democrats, it was required that a Republican be named to fill the vacancy occasioned by the passing of Mr. Eastman.

Mr. Barnard, born in New Castle, is a lawyer and was originally appointed to the Indiana Commission in April, 1921, by the late Governor McCray of Indiana but resigned after serving about one year to join the law firm of Ralston, Gates, Lairy & Van Nuys. The late Mr. Van Nuys, a Democrat, was a former United States senator, as was Mr. Ralston, also a Democrat.

Mr. Barnard, a former mayor of New Castle, was reappointed to the Indiana Commission for a two-year term in 1941 and for a four-year term in 1943 by Governor Schricker. Before becoming mayor of New Castle, Mr. Barnard was prosecuting attorney of Henry County.

New Edition of "Are The United States United?"

Increased public attention to the subject of trade barriers in recent months has resulted in the liberation by many states of laws governing the flow of motor transportation across their borders.

Keeping pace with the trend, the Fruehauf Trailer Company is releasing a third edition of its booklet, "Are the United States United?" which shows how the hundreds of laws which restrict and hamper the movement of goods between states mean higher costs of doing business and higher costs of living for us all.

The booklet brings up to date the latest information available on the movement toward elimination of trade barriers and the adoption of uniform minimum standards for sizes and weights of trucks and trailers.

While the trend is in the right direction, the speed and flexibility of highway transportation are hampered in the present emergency because many states have moved too slowly in adopting uniform standards, which, when adopted, will go far toward encouraging the free flow of interstate commerce on the roads of the nation, and as a consequence will aid mightily in winning the war.

Copies of the booklet are being distributed gratis by the Fruehauf Trailer Co. of Detroit and by Fruehauf branches throughout the country.

NOW AVAILABLE FOR YOUR NEEDS!

***KLEER-FLO* PROCESS**

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- Conserves Cleaning Solvents!
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Not only removes grease and oil from parts and tools, but also continually cleanses solvent by filtering. Replaces old brush and bucket method where dirty parts must be hand cleaned. Great saving of time, labor and solvent.

Assembly consists of centrifugal pump, cone-shaped filter, sparkless motor, working trays and semi-rigid hose, all compactly housed in 16-gauge steel cabinet. Place up to 300 lbs. of dirty parts or tools in tray and spray with solvent pumped through metal hose. Solvent drains off all dirt and grit, then enters filter where all waste is removed, maintaining a constant flow of clean solvent at all times. Fire hazard removed by fusible link which closes safety lid at 160 degrees F.



**Complete
Process . . .**

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DELIVERED IN U. S.

Process includes Kleer-Flo unit, plus 30 gallons of "Kleer-Flo" Hi-T Fast Drying Solvent sufficient for the First Filling of Machine and 10 gallon reserve.

Additional Hi-T Solvent Can Be Bought at 97¢ per gallon, F.O.B. our Philadelphia, Pa., Warehouse.

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PRACTICAL PRODUCTS COMPANY,

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AIRPLANE TOOLS

KEEP THEM FIT TO FIGHT

In mortal combat or civilian flying success in the skies depends on the last minute inspection before taking off

WALDEN WORCESTER TOOLS

are designed to quickly reach inaccessible bolts, nuts and screws—special tools to order—see your jobber.



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One Minute
Talks On
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Obnoxious Odors Effectively Removed!

Refrigerated and other trucks carrying meats, fish, poultry, produce and other perishable foods often develop objectionable odors that must be removed if contamination is to be prevented. To do this work the **MORE EFFECTIVE** way, use triple-purpose

OAKITE DEODORANT No. 1

Applied as directed, it swiftly kills foul smells and objectionable odors. Has no odor itself . . . and leaves **NONE!** In addition, it loosens and completely removes dirt, grease and other bacteria-harboring deposits. At the same time it disinfects the surfaces treated . . . does **ALL THREE** sanitation jobs in **ONE** time-saving operation.

FREE 16-page booklet gives complete information on this and many other uses. Send for your **FREE** copy today.

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MATERIALS METHODS SERVICE



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Personnel Changes

American Brakeshoe Co. appointed Robert R. Ramage as advertising manager and W. J. Mohr as a foreign representative of the export division.

The Southern Wheel Division of American Brakeshoe Co. announced the following changes in its organization: Roy L. Salter, general superintendent, has been appointed works manager. W. C. Appleby, former operating manager, is assistant to the division president. D. E. Hensley was made assistant works manager.

Frank W. Bemis has been appointed sales manager of the American Cable and Hazard Wire Rope divisions of American Chain & Cable with headquarters in New York City.

J. R. Davis was named director of sales and advertising for the Ford Motor Co. For the last five years he was western region manager.

Petroleum Solvents Corp. has made four additions to its sales staff. Peter Hunt, formerly with Associated Oil and Union Oil, and Robert Chris-

tenson, formerly with Thermoid Rubber, joined the western territory. Louis G. Knowles takes over the New England territory. B. P. Kehoe has been added to the midwestern territory.

L. J. Waldron has been appointed assistant sales manager of the Tire Division of the Dayton Rubber Mfg. Co.

M. F. Peckels has been named assistant manager of the consumer relations department of International Harvester.

Lee S. Gilmer has been appointed district representative for Auto-Lite Battery in Miami, Fla.

Louis Dromgoole has been named territory representative for the merchandising division of The Electric Auto-Lite Co. in San Antonio, Tex.

Furber Marshall Heads Carlisle Tire and Rubber

Appointment of Furber Marshall, president of the Pharis Tire and Rubber Co., Newark, Ohio, as president and chairman of the board of the Carlisle Tire and Rubber Co.,

(TURN TO PAGE 208, PLEASE)

IT PAYS 3 WAYS

WHEN YOU DOUBLE YOUR PAYLOADS WITH



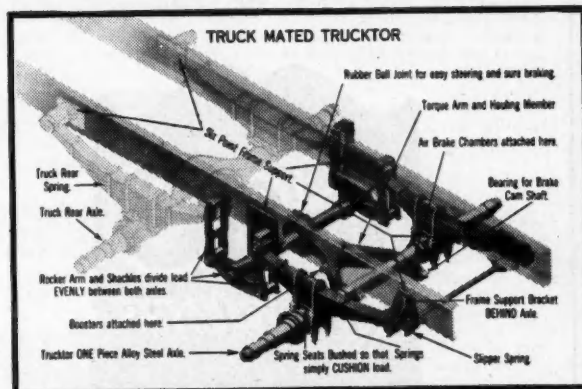
• Fleet owners tell us that doubling their payload capacity by adding Trucktor Third Axles to their present two-axle trucks pays them in these three ways:

(1) **Saves Time** in getting urgently needed extra hauling capacity. Application approval is easier, faster—ration boards realize Trucktor adds same transportation as new truck at far lower cost in manpower and materials. Installation is quicker because there are no complicated gears in Trucktor.

(2) **Saves Money** because Trucktor's low first cost is the last cost. Pays for itself quickly, then the extra payload rides free.

(3) **Saves Tires** because Trucktor Third Axles reduce the load per tire, a big factor in lengthening tire life, especially with synthetics.

Do as many nationally prominent operators are now doing. Install Trucktor Third Axles in your present trucks or specify them when applying for your new truck allotment. Write us today or ask your truck dealer for the complete Trucktor story.



TRUCKTOR'S TRUCK MATING PREVENTS EXCESSIVE TIRE WEAR

Since the Trucktor Third Axle is truck-mated to the truck, the trailing wheels track accurately without tire scuffing. Synchronized braking equalizes stresses on tires, preventing premature weakening. These and other facts are detailed in the Trucktor data sheet. Write for it.

THE TRUCKTOR CORPORATION • 156 WILSON AVENUE • NEWARK 5, NEW JERSEY

KEY GRAPHITE PASTE



A can of Key Compound is just about the best "tool" you can give your mechanic for every day use around the shop.

It eliminates leaks at all thread and gasket connections and on your service station equipment, pumps, etc.

Key Compound doesn't "freeze" the joint. It won't spoil nor harden in can. A little bit goes a long way—requires only water for thinning.

Test out its goodness today—with a free sample.

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THE G & O MANUFACTURING CO.

NEW HAVEN

CONNECTICUT

Be
100%
With
10%
•
Buy
War
Bonds

(CONTINUED FROM PAGE 206)

Carlisle, Pa., has been announced by the Carlisle board of directors.

At the same time, R. W. Atkins, of Shearson, Hammil and Co., New York City, was elected to the Carlisle board of directors.

The Carlisle operations were recently purchased by the Pharis organization.

Bendix-Westinghouse Appoints Regional Managers, Engineers

Preceding the annual sales conference of the Bendix-Westinghouse Air Brake Co., just concluded, the following appointments were announced by F. L. Wheaton, director of sales:

I. F. Nelis, manager government sales; E. W. McKay, regional sales manager (eastern); A. E. Wolfe, regional sales manager (western); D. R. Brehm, regional sales manager (southwestern); J. F. Shumaker, regional engineer (eastern); J. V. Ralston, regional engineer (central); W. L. Bevan, field engineer (western); J. Simmonds, service representative (southwestern); G. E. Gribble, service representative (central).

The individuals named will assume their new duties immediately, thereby obviously enhancing the position of the Bendix-Westinghouse Co. in serving its broadening field of endeavor. Without exception, the men named to these new posts are well known in automotive circles as control experts, and most of them are seasoned veterans of many years' experience with the Bendix-Westinghouse Co.

Paulin & Corroon Join Edison-Splitdorf Spark Plug Division

Walter H. Paulin has been appointed district sales supervisor of the spark plug division of the Edison-Splitdorf Corp., covering Ohio, Michigan, West Virginia, western Pennsylvania and eastern Kentucky. Mr. Paulin was formerly connected with the Columbus-Ohio branch of the Pennsylvania Rubber & Supply Co. as sales representative.

It was also announced that Michael Corroon has been appointed a sales and service engineer in the same division. Mr. Corroon was formerly traffic manager of the H. L. Gobel & Co., motor freight carriers, of Great Meadows, N. J., and New York.



CAMPBELL Lug-Reinforced Tire Chains keep trucks and buses on the job... safeguard lives and cargo... eliminate delays... save tires. Exclusive* saw-toothed lugs assure positive traction... make it possible to start and stop safely—without dangerous, rubber-chewing slip and skid. Tough, hard-wearing steel, and one-piece construction, mean increased chain mileage. International Chain & Mfg. Co., York, Pennsylvania.



**FASTER EASIER
BETTER
CLEANING**

from
"Stem to Stern"

**CHASSIS AND
RUNNING GEAR**

1

Steam cleaning with pH controlled KELITE KDL No. 24 is simpler, faster and cheaper. It breaks up chassis grime, oils and greases so that they readily wash away and leave the surfaces film-free.

**MOTOR AND CRANK-
CASE SURFACES**

2

KELITE PROTEXOL mixes with kerosene to form a perfect pH controlled solution which destroys the adhesion of oil, grease and gummy coatings by "wetting out." Harmless to paint, it can be used freely on cars and trucks.

**PISTONS, HEADS,
CYLINDER BLOCKS**

3

Carbon, sludge and other oil deposits quickly yield to pH controlled KELITE KETREX, and are completely removed without scraping and brushing.

**RADIATOR
CLEANING**

4

KELITE'S pH controlled Special Radiator Cleaning Process... One flush to remove sludge, dirt, loose particles — a second flush to remove rust and scale — and the radiator is clean!

**BODY AND
FENDER SURFACES**

5

At a cost of only 1/4 to 1/2 cent for pH controlled KELITE SUPER-FOAM you can bring out the clean, polished-looking natural finish of a car or truck! KELITE SUPER-FOAM is completely safe for the exterior surfaces of cars, trucks and busses.

Write Today for Full Information and Prices of These Kelite pH Controlling Cleaning Products for Faster, Easier and Better Cleaning!

KELITE PRODUCTS, INC.

AUTOMOTIVE MAINTENANCE DEPT.
909 EAST 60TH STREET
LOS ANGELES 1, CALIFORNIA

NAME _____

ADDRESS _____

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NEW PRODUCTS

(CONTINUED FROM PAGE 59)

P238. Recessed Locks

A new line of locks designed for compartment doors of tank and utility bodies, lockers, etc., has been developed by the Eberhard Mfg. Co., Cleveland, Ohio. All locks in this comprehensive line have recessed plates equipped with folding, rattle-proof handles — hence the name "Recesso."

A feature is ease of installation. The center case is fitted into a simple cutout, close to the edge of the door, if desired. It is attached by screws, bolts or welding and is adaptable to wood or metal doors.

The line contains 14 different locks including dead bolt units, dead bolt locks fitted at the factory with key operated cylinder locks, two types of slam locks with key cylinders and a single point engaging slam lock.

The key cylinder lock is unusual. It simply actuates a heavy bolt which drops into a notch in a circular plate. Upon opening a door the key can be turned to the locked position. Then, upon again turning the handle to locked position, or slamming, the door in the case of slam locks, the bolt automatically snaps into the locked position.

Use Free Postcard for More Details

P239. Liquid Level Indicator

The patented U-C Indicator has been made adaptable to 30-gal. steel drums in addition to the 55-gal. steel



drums on which it has been successfully used for several years.

Made by Techtman Industries, Inc., Milwaukee, Wis., the U-C tells at a glance the "inside story" about the liquid level content of drums. It eliminates tapping and measuring.

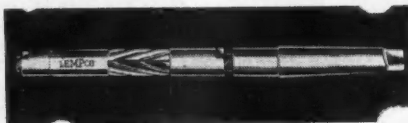
The unit fits all 55-gal. and 30-gal. steel drums. It screws into the drum faucet opening and the faucet screws into the opening on the indicator body. When the drum is empty, the entire assembly may be removed and attached to a full drum.

Use Free Postcard for More Details

P240. Expansion Reamer

A new Lemco hi-speed steel expansion reamer employs an adjusting lock-nut to hold the three cutting blade segments absolutely rigid, and prevents any possibility of an over-size bore resulting even when the reamer blades are subjected to excessive pressures.

Made by Lemco Products, Inc., Bedford, Ohio, this dual-spiral reamer has three blade segments, two of which spiral in a direction opposite to that of the third—simultaneously. This opposite-spiralling effects a shearing action which finish-reams mirror-smooth any machinable metal, ferrous or non-ferrous.

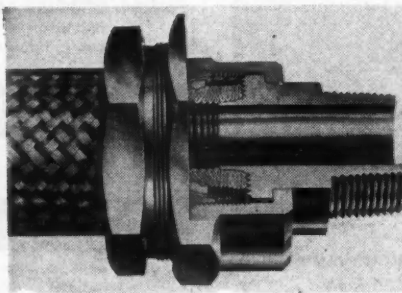


The removable blades are quickly and economically resharpened. They maintain their size and keen cutting edge because from .035 in. to .060 in. straight line expansion is provided.

Use Free Postcard for More Details

P241. Detachable Coupling

A detachable brass coupling for helical flexible metal hose in sizes from 3/4 in. to 1 1/4 in. I.D. has been



developed by Packless Metal Products Corp., New Rochelle, N. Y., offering the advantage of being mechanically self-sealing. No brazing is employed—no heating of the hose to weaken it at the point where flexing and vibration place the greatest strain on the hose.

The unit consists of only four parts—the nut, back, stem and split ring. When assembled the convolutions of hose and the metal braid are securely held by pressure between the members as shown in the accompanying cut-away view.

Use Free Postcard for More Details

P242. Socket Wrench Set

Stevens Walden, Inc., Worcester, Mass., has available its "Might" socket wrenches in set 3100 A, complete in drawn steel box with partition. The set contains a hinged



handle with cross bar; spintite nut driver with plastic handle; five single hex sockets—3/16, 7/32, 1/4, 9/32 and 5/16 in.; three double hex sockets—11/32, 3/8 and 7/16 in.; three square sockets—1/4, 5/16 and 3/8 in.

Tools and box are protected with corrosion resistant finish.

Use Free Postcard for More Details

P243. Oil Dilution Extractor

An oil dilution extractor, known as Oildex, is announced by Motor Economy Products, Inc., 407 W. 36th St., New York 18, N. Y. This device draws the oil, gasoline and water vapors from the engine crankcase and, after filtering and cleaning them, passes the vapors through an



automatic control valve to the intake manifold and the engine. The manufacturer claims that formation of sludge is restricted, oil viscosity is maintained.

Use Free Postcard for More Details

END

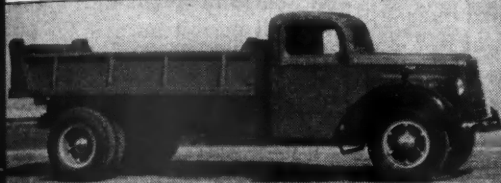
(Please resume your reading on P. 60)

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PLATFORM STAKE BODIES



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to keep it clean

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Truck Tire Shortage in Summer Months, ODT Warns

There will be a shortage of heavy- and medium-duty truck and bus tires for replacement purposes during July, August and September, according to Director J. Monroe Johnson, of the ODT.

Third-quarter tire allocations by the Office of the Rubber Director, Colonel Johnson said, are substantially below requirements on 10-ply-and-over tires in sizes 7.00x20 and up. The supply of tires in smaller sizes is reasonably adequate, he said.

The ORD total allotment to the ODT, as the claimant agency for tires for all forms of domestic transportation, is 795,945 heavy- and medium-duty truck and bus tires for the third quarter, an increase of about 18 per cent over the second-quarter allotment of 674,891 tires in these categories.

The number of tires for original

equipment on new vehicles in the third quarter is 160,058, an increase of about 65 per cent over the 97,156 tires required for this purpose in the second quarter. This leaves a total of 635,887 tires remaining for replacement purposes in the third quarter, as compared with a total of 577,735 replacement tires in the second quarter.

"The net effect is that the number of tires available for replacement purposes during the third quarter will exceed the second-quarter total by only about 10 per cent, while the normal seasonal increase in replacement demands between the second and third quarter is at least 25 per cent," Colonel Johnson said.

"The extent of the threatened shortage may also be illustrated by reference to actual tire-rationing experience. During the second quarter of

1944, approximately 125,000 tires per month in sizes 8.25x20 and over were released for replacement purposes by the Office of Price Administration through the rationing system. This number of tires has proved insufficient to meet current replacement demand.

"The estimated monthly replacement requirement in sizes 8.25 and up during the third quarter is 165,000 tires, whereas the total production allotment available for that purpose will permit an average monthly rationing quota of not more than 140,000 tires. This means a net deficit of approximately 25,000 tires a month.

"In the face of this shortage it is imperative that truck and bus operators practice the most rigorous conservation measures. Otherwise, we may not be able to avoid a severe curtailment of essential motor transport services. Excessive speed and overloading must be eliminated; tire maintenance practices must be kept at the highest possible level; and recaps must be substituted for new tire replacements in every case where possible."

Study Board Would Lift I.C.C. Reductions on Carriers

The transportation Board of Investigation and Research has recommended to the President and the Congress that the Interstate Commerce Commission be directed to suspend Federal restrictions hampering the operating efficiency of motor freight carriers for the duration of the war and proposed legislation for permanent post-war liberalization of such restrictions. The recommendations were made in connection with the submittal of a summary of the Board's detailed report on "Federal Regulatory Restrictions upon Motor and Water Carriers." The complete report will be filed later.

The Board specifically recommended that the provisions of the Second War Powers Act, authorizing the Commission to suspend the restrictions be extended beyond Dec. 31, 1944, expiration date of the act, and that the act be amended to direct the Commission to suspend:

1. All commodity restrictions except those which reflect the fact that the carrier cannot practically use its specialized vehicles to haul commodities other than those authorized.

2. All route restrictions which require unnecessary circuitous movement over specified routes or through gateway points.

3. All territorial restrictions which prevent carriers from serving all points within their authorized territories or points through which their vehicles pass while rendering service in such territories.

4. All return-haul restrictions which prevent carriers from rendering service between points in both directions.

In proposing permanent liberalization of the restrictions the Board recommended that part II of the Interstate Commerce Act be amended in order that:

1. Special commodity restrictions

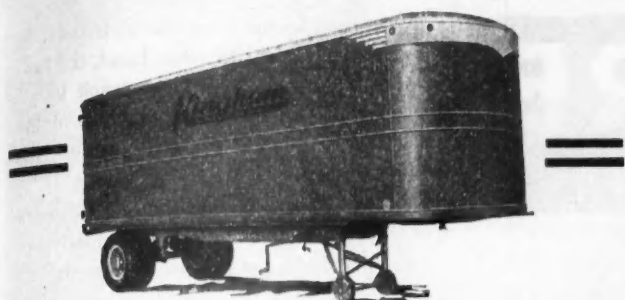
shall be limited to carriers whose service is of such specialized nature as to be unsuited to the transportation of general commodities, but such restrictions shall not prevent the carrier from using its equipment for transportation of such commodities as are necessary to provide adequate and economical loads, outbound and inbound.

2. Route restrictions which require unnecessary circuitous movement over specified highways or through gateway points or unnecessary movement through congested areas shall be eliminated from all certificates and permits.

3. Authorizations which prevent common and contract carriers from rendering service to and from all points within their authorized territories and points through which their vehicles pass in serving presently authorized territories shall be abolished.

4. Restrictions upon the type of service rendered shall be limited to those necessary to confine carriers to common or contract carriage, except where rendition of both types is consistent with the public interest. A

(TURN TO PAGE 222, PLEASE)



TRAILERS NOW AVAILABLE FOR CIVILIAN USE!

We have one small lot of brand new trailer vans that must be disposed of immediately. These vans have all the latest mechanical improvements and are priced for quick sale. Act today if you want a real bargain!

The W. P. B. has given us the "go" to manufacture, for civilian use, Semi, Tandem and Four Wheel trailers with rack and platform bodies.

When you get your Certificate of Transfer (WPB-717) for a new unit, be sure and see your nearest Kingham Distributor or write direct to us.

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A new WPB ruling enables us to increase production on many items. Chances are that you can now obtain most of the important "KING" Testing Equipment that you need, and without a priority rating. This new release will make it possible for us to supply "KING" Testing Equipment that has been so urgently needed in many repair shops for a long time. Consult the "KING" Jobber in your territory for list of available equipment — chances are he will be able to supply most of your needs.

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Faster Easier Pin-Fit Jobs

Finish - reams mirror - smooth

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blades have .035" to

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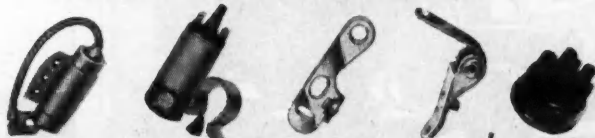
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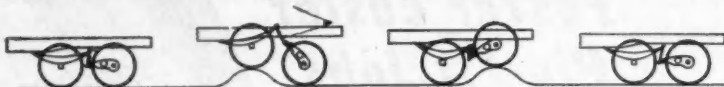


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**"A TRUCK SHOULD BE
A MONEY MAKING MACHINE"**



BOARD WOULD LIFT ICC RESTRICTIONS

(CONTINUED FROM PAGE 214)

study disclosed that most intercity motorfreight carriers in interstate commerce have been restricted with respect to the commodities they may haul—62 per cent of them to special rather than general commodities. Approximately 98 per cent of the general commodity carriers have been restricted by a list of exceptions which usually included high-value articles, explosives, bulk commodities, household goods, commodities requiring special equipment, and commodities injurious to other lading. About 54 per cent of the common carriers, according to the report, have been restricted to special commodities, and, "as might be expected from the limited number of shippers served

by contract carriers, nearly 96 per cent of this group has been limited to specified commodities."

Wage Study Recommended

In its labor study entitled "Hourly Remuneration Rates by Occupations in the Transportation Industry," the Board finds that the average hourly remuneration rate paid to employees by any form of transport varies between the eastern, western, and southern districts. But, the report emphasizes, these territorial differences are unlike from one kind of carrier to another, with the effect that the competitive relationships between the various kinds of carriers in any one district are not the same as those in the other districts.

As an example of the report's findings, the truck industry's average hourly labor cost in the East was 12

per cent lower than the railroad's. In the South, on the other hand, the railroad industry faced the truck industry but the hourly labor cost of the latter was 27 per cent below the railroad's.

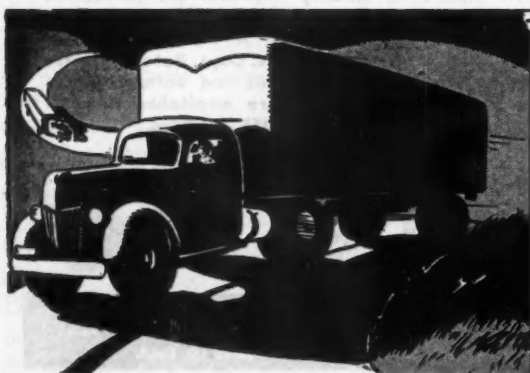
Wage rate variations, according to the report, are caused principally by: (1) differences in union strength, (2) application of standardized piece rates to operating conditions which are not geographically uniform, and (3) insufficient knowledge of job values.

The Board recommends that the Federal Transportation Authority, proposed in its recent preliminary report on "Relative Economy and Fitness of the Carriers," be directed to conduct, in cooperation with the Department of Labor, a job evaluation study covering the entire interstate for-hire transportation industry. The Authority would also be instructed to prepare a standard labor information report, returnable annually by the carriers, designed to develop comparable data concerning wages, hours, working conditions, and labor costs in the transportation industry.

Information developed by such research, the report says, would be especially pertinent in the consideration of freight-rate regulation, mobility of labor and employee welfare, and Federal labor policy.

230,091 Trucks Rationed To May 6

Since March 9, 1942, when the War Production Board's rationing program went into effect, 230,091 vehicles have been released, WPB announced. Comprised in this total are 48,767 light, 126,175 medium, and 29,568 heavy trucks, 22,554 trailers, 2849 third axle attachments and 178 miscellaneous vehicles.



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"Original" self-emulsifying grease solvent. Not only dissolves grease and oil but emulsifies it as well. Use GUNK on floors, engines, chassis parts,

There's Only One
BURN-OUT PROOF
DIRECTIONAL SIGNAL SWITCH
And we make it!



Available in complete sets of Signal-Stats or as a replacement switch.

ASK YOUR JOBBER Pat. Pend.

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For car, truck, bus or plane.

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Quicker—because gauge remains in same spot for both readings. All done in less than 2 minutes. Simple. Extremely accurate. Fits any vehicle. Every mechanic should own one.

Only 10 inches Long

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When a STERLING takes its place in your fleet, it carries with it not only the original STERLING quality but a future safeguard for its service life . . . the STERLING Complete Truck Service.

Planned and maintained by experts, the Service offers a comprehensive parts stock, rebuilding facilities and a complete road service.

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SAVE WASTED MILES OF TIRES

Spotty tire wear, due to wheel unbalance, means a waste of rubber that would otherwise be good for thousands of miles of travel. Save these wasted tire miles by balancing your wheels with L & H Weights today. The investment is trivial—the dividends enormous!

SEND for wall chart showing how unbalance wears out tires.



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Wheel Balancing Weights

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FRAMELESS TANK DESIGN EFFECTS SAVINGS

(CONTINUED FROM PAGE 57)

aimed to overcome costly mechanical maintenance, eliminate or reduce to a minimum tire scuffing with the resultant wear of rubber, and eliminate so far as possible all stress on the tank container in order that it might safely be made of the lightest weight material permitted by ICC specifications without the danger of encountering throughout its life numerous leaks which create hazardous operating conditions in addition to costly operation due to high maintenance and a high percentage of lost time.

Ideas for the axle were worked out in cooperation with Trucktor Corp. for fabrication into a multi-wheel unit. The aid of Differential Wheel Co. was enlisted to supply a special wheel; and Davis Welding & Mfg. Co. built the "frameless" tank body and assembled the complete mobile unit.

The efficiency of the new tandem-axle chassis is highlighted by a minimum number of wearing parts, a smaller number of lubrication points, rubber spring mountings, and revolutionary spring design.

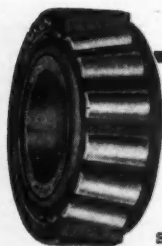
Only Five Wearing Parts

The only wearing parts are five bushings on each side in the rocker arm assembly. They are accessible, close together and located between the two wheels.

Lubrication is confined to seven lubrication fittings on each side, in the five rocker arm bushings, and the two slipper spring ends.

Rubber Spring Mounting

The rubber spring mounting assembly consists of two individual springs on each side connected through a rocker beam by means of



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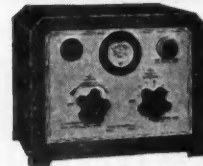
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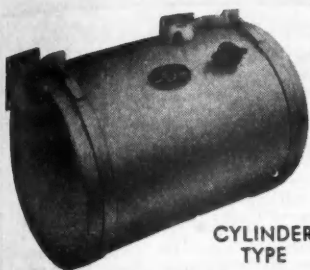
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GASOLINE
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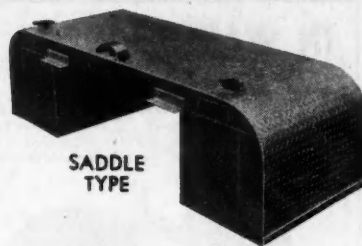
ALL LIQUID OR GASEOUS FUELS



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Distributed in all principal cities. Write for descriptive literature.



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KEEP AMERICA'S KEY TRANSPORTATION
ROLLING!

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★ SEE YOUR
LOCAL JOBBER
OR WRITE FOR
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AUTOPULSE
ELECTRIC FUEL PUMP

- Uninterrupted Schedules
- Instant Starting
- Greater Economy
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- Added Protection

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Order and Sell
**CARTER
PARTS**

by the Package!

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2820-56 North Spring Ave., St. Louis, Mo.

shackles in the center and with slipper-type ends attached to the two axles by large, rubber mounted spring seats. Due to the action of this rubber mounting, the springs are load carrying members only and take no braking strains, resist no axle tension, and do not act as radius rods. Within generous limits each axle is free to "float" in all directions in the large rubber bushings.

When an axle goes over a rise or depression in a road, it assumes an angle in the rubber bushings without putting stress into the springs and into the tank through the springs. This flexibility results in the springs remaining "square" with the frame structure at all times. Long experience has demonstrated that these bushings need no attention or servicing and, normally, never require replacement. They usually outlast the vehicle.

Spring leaves on the tank trailers have depressed centers as well as center bolts which eliminate center bolt shearing. Each spring has one slipper end with a silent hook which maintains a rebound tension at all times and eliminates rattle and other noise. Side clearance of about a half-inch is provided between slipper ends and supporting brackets. This permits tracking of the axles to some degree, cutting down tire wear and eliminating side twist in springs due to uneven roads.

Three Point Attachment

Attachment between the tank structure and the spring assembly is made at three points on each side, at the two spring slipper ends and at the center through the rocker-arm brackets. Compared with the typical single point attachment, this distributes the load over a large area of tank structure, tending toward uniform rather than concentrated loading,
(TURN TO NEXT PAGE, PLEASE)

THE PLATE SIZE HAS BEEN INCREASED!

The Heavy-Duty 5th Wheel is now manufactured with a 33" plate size only! WRITE FOR DETAILS:

ASF Safety 5th Wheel
AMERICAN STEEL FOUNDRIES
Automotive Division, 400 N. Michigan Chicago 11,

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No. 498
Rubber-Bladed
Defrosting &
Ventilating
Fan



Fulton Electric Sleet-Frost Shield

We made 'em before... and we'll make 'em again... when Victory is won.

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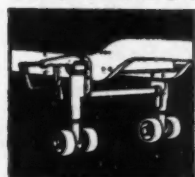
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HYDRAULIC
SHOCK
ABSORBERS
The GABRIEL Company
ESTABLISHED 1904 - CLEVELAND 14, OHIO

FRAMELESS TANK DESIGN EFFECTS SAVINGS

(CONTINUED FROM PAGE 225)

avoiding high localized stresses and thus permitting use of lighter construction and material.

Torque Arm Y-Shaped

Each of the two axles is fitted with a Y-shaped torque arm. The forward end is rubber mounted and located centrally in the under-structure on a cross bar. The two rear ends are held rigidly by large U-bolts to the axle near the springs. These torque arms perform two important functions: absorb brake torque reaction and act as radius rods and keep axles in alignment.

Conventional radius rod types, usually mounted above the center line of the axle, allow the axle to change location when the brakes are applied, and under certain road conditions both ends of the axle may not move in unison and the axle will not remain "square." This results in considerable side stresses on the springs, tires, frame, axle, and other parts.

In the new chassis design, the torque arms, being rubber mounted, absorb initial braking shock, reduce vibration stresses and aid to keep the axles in alignment with the vehicle. The rubber mounting eliminates adjustable radius rod ends which are subject to rust, rattles, and improper adjustment resulting in misalignment of axles. And another attraction is that the usual radius rod adjustment and lock nuts are eliminated.

New Dual Wheel Design

A new design of Differential dual wheels not only permits each wheel to turn independently at its proper rate of rotation, but insures synchronized braking action. This important feature, along with the special design of the tandem axle, such as the sliding slipper spring ends, rubber-mounted axle shafts and rubber mounted torque arms, creates the possibility that tire scuffing will be practically eliminated.

Ordinarily, the distribution of bulk gasoline and other petroleum products in Arkansas is by rail shipment. The Office of Defense Transportation, because of difficulty in obtaining

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HEAVY DUTY FOR
OFF THE HIGHWAY SERVICE

— Specially Designed for —
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Mining—Pit and Quarry—Logging—Oil
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It Costs No More for Trucks Specially
Built to Fit Your Needs. Have Our Engi-
neers Visit and Analyze Your Operation.

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Both "V" TYPE and
ONE WAY BLADE TYPE

hand or power hydraulic control

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FROM 1½ to 10 TONS

Model 38AC and 38BC with discoloration
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DAVENPORT-BESLER CORP., DAVENPORT, IOWA
FRINK SNO-PLOWS OF CAN. Ltd., TORONTO, ONT.

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The mark SUPERIOR GALVANNEALED identifies the most highly developed zinc coated (heat treated) steel sheet for truck and trailer body construction.

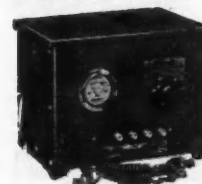


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Improved ventilation for cool operation, longer life and greater efficiency. They stand the strain of peak loads.
12-batt. size...\$28.00
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KEEP your motor units rolling with TUTHILL SPRINGS! Uncle Sam does—on all fronts. Into every spring we make goes our experience of sixty-three years in leaf-spring manufacture. Tough, strong, durable, TUTHILL can be depended upon to give reliable, lasting service. Investigate.

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lems to us.

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CHICAGO 7



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Cal-Van
MACHINE PRODUCTS, INC.
809 WATER ST. JACKSON MICH. U.S.A.

tank cars for long haulage, urged petroleum companies to forego the use of tank cars for tank trailers for shipments up to 200 miles. Complying with this request, Esso Marketers acquired, and are now operating, the seven new tank trailers.

Depending upon the availability of petroleum products for distribution, the seven vehicles will have an output capacity of between 2000 and 2500 tank car loads annually—representing the placing into war service of 35 to 50 tank cars.

END

(Please resume your reading on P. 58)

FREE PUBLICATIONS

(CONTINUED FROM PAGE 58)

L190. Currier & Ives Print

One of the famous Currier & Ives' prints depicts the great fire at Chicago, October, 1871, that destroyed five square miles of valuable business and public property at a loss of \$200,000,000 and 500 lives.

A copy of this dramatic print, suitable for framing, is available free to interested fleetmen simply by writing L190 on the accompanying postage-free mailing card.

L191. Tire Care Reminders

The importance of preserving every tire carcass possible is the aim of every fleet shop. Here are two aids that should bring excellent results:

Dash stickers, calling attention to drivers that the tire shortage is serious; that the vehicle should not be driven over 35 m.p.h.; that the vehicle should not be loaded over its rated weight. Attention also is called to "start and stop vehicle easy, avoid bumps," etc.

The sticker is 3 1/4 x 3 1/2 in. in size, (TURN TO NEXT PAGE, PLEASE)

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UNITS AVAILABLE

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TOUGH
SCHEDULES
SAFELY**

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BRAKE BLOCKS

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SALESMEN WANTED—Automotive maintenance item. Wide acceptance by bus, truck, construction companies, large fleet owners. Exclusive territories. Full protection. Box 59, Commercial Car Journal, Chestnut & 56th Streets, Philadelphia 39, Pa.

**BUY SECURITY
BUY BONDS**

Permanently Solve Your Lens Problem

with
Bowman
BRIGHT BEAM
Plastic LENSES



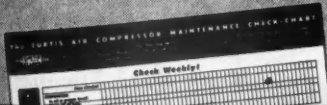
Try this experiment on your present lens—then try it on ours and you will then understand what we mean by permanent. Made in two colors, red and amber (that will not fade) they are weather proof and have glass-like transparency. Contact your jobber or write us direct.

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For Longer Compressor Life!
Write For Your Free Copy
of the New CURTIS
MAINTENANCE CHECK-CHART



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of Curtis Manufacturing Company
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The most important thing about oil is . . .

KEEP IT CLEAN
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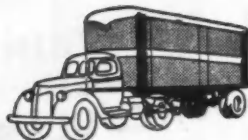
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A battery is no better than the name behind it

EDISON

THE GREATEST NAME IN ELECTRICITY



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2104 E. 10th St., KANSAS CITY, MO.

JONES PORTABLE TACHOMETER



The world's largest operators of commercial vehicles use Jones Portable Tachometers to check engine speeds for tune-ups, and setting governors, etc. Here are a few: Standard Oil Co., of La., N. J., N. Y., Shell Petroleum Co., Atlantic Refining Company, Tidewater Oil Company, Keeshin Motor Express,

Mack Trucks, Brockway, U. S. Navy.

Direct, instantaneous reading

JONES-MOTROLA, STAMFORD, CONN.
432 FAIRFIELD AVENUE

FREE PUBLICATIONS

(CONTINUED FROM PAGE 227)

and designed to be mounted on the dash.

An effective follow-through on tire conservation is a 12½ x 19 in. garage poster that operators can employ effectively to remind their organizations of the critical need to save the carcass for recaps.

Both of these conservation aids will be sent in any quantity required simply by marking L191 and the quantity desired on the free postcard.

L192. Oil Vapor Recovery Book

An interesting new booklet on liquid petroleum transfer and recovery of gas vapors has just come off press.

Loss of gas vapors when unloading tank cars to storage has been a problem since the use of these gases became an important part of the industry. Before the advent of the method described in this book, it was the practice to recover all possible in liquid form, but the vapors—500 to 1000 lb.—were hauled back and forth from the refinery with the attendant loss both in gas and haulage.

The booklet describes how this vapor can be recovered and describes methods of speeding up the emptying of tank cars or trucks. It also describes various methods of filling bottles, and contains many tables and pertinent data of a valuable nature for users of LP Gas.

A free copy of the booklet may be obtained by writing L192 on the postcard.

END

(Please resume your reading on P. 59)

HEAVY ONES for LIGHT ONES

Ford, Chevrolet or Dodge 1½-ton trucks can be converted to heavy-duty Four-Rear Wheel Drive Trucks.

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Consult our Engineers

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Whiz MOTOR RHYTHM

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KEEP YOUR VEHICLES MOVING ECONOMICALLY

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HALL VALVE SERVICING EQUIPMENT

Ask Your Jobber or write

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The Cleveland Pneumatic Tool Co.
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A Nation-Wide Organization of Independent Warehousing Distributors

NATIONAL AUTOMOTIVE PARTS ASSOCIATION
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File New Truck Applications Through ODT District Offices

Operators of commercial motor vehicles who need to purchase new equipment after July 1 should file their applications through the 142 district offices of the Office of Defense Transportation throughout the country instead of the 80 offices maintained by the Bureau of Motor Carriers of the Interstate Commerce Commission, the ODT announced.

All field work incidental to the rationing of new commercial vehicles will be handled by the Highway Transport Department of the ODT, through transfer of this activity from the ICC, which has handled the allocations for the past two years, the ODT explained. Under the new setup, the ODT's Regional Division will process the applications in the field in accordance with policies and procedures of the Allocation Section of the Highway Transport Department.

Tivit Buys Torrance Cleaner

Tivit Products, Inc., has purchased the Torrance Steam Cleaner Co. and moved its main offices to the Torrance factory at 1026 Engracia Ave., Torrance, Calif.

Tivit continues the manufacture of Torrance Steam Vapor Cleaners in addition to its own steam machine and the full line of specialized equipment which Tivit has developed for metal processing and cleaning.

Bruce Wiswall and M. P. Greffoz, Tivit executives, retain their positions as general manager and production engineer, respectively. L. B. Buckley, Torrance plant superintendent, has been appointed plant superintendent for the combined organization.

Edgerton Named Secretary and Williams White Branch Manager

Alfred Dixon Edgerton, resident patent counsel for The White Motor Co., has been promoted to secretary of the engineering department, retaining his title of patent counsel.

C. A. Williams has been appointed New Haven branch manager. He succeeds S. J. Sullivan, who is returning to his home town of Waterbury, Conn., to become a part of the White distributorship there—Waterbury White Trucks, Inc.

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"KOLORFILM" DECALCOMANIA

FIRST IN APPEARANCE
ECONOMY
DURABILITY

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MILLER MFG. CO.**
• CAMDEN, N. J. •

MEEHANITE
The Ideal Metal for BRAKE DRUMS

RESISTS HEAT, SCORING
GIVES SMOOTHER BRAKING ACTION
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Developed in cooperation with General Foundry & Mfg. Co. of Flint, Mich.

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38 South Avenue, Garwood, N. J.

MAGNUS
FLEET CLEANING MATERIALS

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